especial propriety in proceeding with it at Simla, where they had the advantage of the presence of His Honour the Lieutenant-Governor and of a large number of experienced officers. This view was much strengthened when his hon'ble friend, Mr. Egerton, became a member of the Council. Although he (MR. STRACHEY) had at one time been disposed to think the conclusion inevitable, that the only practicable course was to confine the measure to the Panjáb, circumstances now seemed to be different. A letter had been addressed to the Government of India by that of the North-Western Provinces, in which it was stated that His Honour the Lieutenant-Governor "observed, with much regret, that the Bill for regulating Irrigation in Upper India had not yet passed into law;" that serious loss and inconvenience arose from the delay; and that the passing of the Bill with all possible expedition was earnestly recommended. The letter went on to say that till the Bill was passed, the Government had no legal control over beds of rivers, and could not interfere with private dams, however desirable on public grounds such interference might be; and, moreover, that considerable loss of income had resulted from the present defective condition of the law. From this letter MR. STRACHEY inferred that the objections which were supposed to exist to the extension of the Bill to the North-Western Provinces, had no valid grounds. The Bill would, therefore, be now proceeded with in Committee, and as it had at any rate, in regard to most of its principal provisions, the approval of the Lieutenant-Governors of both Provinces, he trusted that no difficulty in dealing with it need be apprehended. Mr. Egerton had consented to take up the Bill, and his experience and knowledge of the subject would give the Council and the public full assurance that it would be dealt with in a wise and careful manner.

The Motion was put and agreed to.

SUNDRY BILLS.

The Hon'ble MR. STRACHEY also moved that the Hon'ble Mr. Egerton be added to the Select Committee on the following Bills:—

To regulate the construction and maintenance of public works for Irrigation, Navigation, and Drainage.

To consolidate and amend the law relating to advances of money by the Government for the improvement of land.

To facilitate the construction of works of public utility from Local and Municipal Funds.

The Motion was put and agreed to.

LOCAL PUBLIC WORKS BILL.

The Hon'ble MR. STRACHEY also, with His Excellency's permission, moved that the Hon'ble Mr. Ellis be added to the Select Committee on the Bill to facilitate the construction of works of public utility from Local and Municipal Funds.

The Motion was put and agreed to.

The following Select Committee was named:—

On the Bill to amend the European Vagrancy Act, 1869:—The Hon'ble Messrs. Ellis, Cockerell and Egerton and the Mover.

The Council adjourned to Tuesday, the 25th July 1871.

H. S. CUNNINGHAM,

Offg. Secy. to the Council of the Governor General for making Laws and Regulations.

SIMLA;
The 18th July 1871.

GOVERNMENT OF INDIA.

PUBLIC WORKS DEPARTMENT.

IRRIGATION OPERATIONS OF FUSL KHURREEF IN THE NORTH-WESTERN PROVINCES UP TO 31st MAY 1871.

Canal Divisions	Water distributed during the month: Depth in canal at regulating gauge: Full supply, feet	Actual throughout, feet	Gross consumption, cubic feet per second: Estimated full supply	Actual average throughout
Ganges Canal: Northern	10·00	*9·17	710	688
Meerut	8·10	7·40	1,037	840
Futtehgurh	6·80	5·29	667	425
Boolundshuhur	6·35	6·20	933	913
Allygurh	5·60	5·40	1,053	617
Etawah†	4·80	3·38	771	679
Cawnpoor†	6·20	3·90	958	647
Total	..	..	6,129	4,809
Eastern Jumna Canal	..	3·87	..	852
Doon Canals	..	..	..	44
Bundelkhund Irrigation Works	..	..	..	..
Rohilkhund Canals	..	..	..	193
Grand Total	..	..	6,129	5,898

Navigation Return, Ganges Canal: Nature of Traffic	Up: Mds.	Up: No.	Down: Mds.	Down: No.	Total Up and Down: Mds.	Total Up and Down: No.
Grains—						
Barley	..	..	500	..	500	..
Oorud	..	..	711	..	711	..
Wheat	..	..	1,100	..	1,100	..
Moong	..	..	50	..	50	..
Urhur	1,262	..	..	..	1,262	..
Dhan or paddy	..	..	25	..	25	..
Rice	1,329	..	..	..	1,329	..
Gram	727	..	..	..	727	..
Total	3,318	..	2,386	..	5,704	..
Cotton	..	..	3,048	..	3,048	..
Oil-seeds	19	..	12,846	..	12,865	..
Salt	363	..	7,165	..	7,528	..
Metals	7,182	..	873	..	8,055	..
Building materials	277	..	3,807	..	4,084	..
Miscellaneous goods	2,669	..	8,378	..	11,047	..
Firewood	770	..	27,424	..	28,194	..
Bamboos	..	..	..	1,479,768	..	1,479,768
Tors or Bulloes, unsquared timber	..	..	..	11,541	..	11,541
Kurrees, squared timber	..	251	..	17,288	..	17,539
Logs	..	12	..	1,410	..	1,422
Miscellaneous timber	..	2	..	879	..	881
Live-stock	..	25	..	93	..	118
Total	14,598	290	65,027	1,510,979	80,525	1,511,269
Fusl Khurreef 1869-70, to 31st May	9,556	12,947	80,847	724,875	90,403	737,822
					+9,878	−773,447
						9,878
Net Decrease					..	763,569

Land irrigated (approximate): Zillah	Acres	Rain-fall: Total from the 1st April to 31st May	Average of ten previous years for the same period
Saharunpoor *	10,236	1·3	1·27
Mozuffernuggur	22,507	1·1	1·09
Meerut	45,602	3·1	3·56
Boolundshuhur	22,627	1·4	1·06
Allygurh	35,459	0·6	0·95
Muttra	5,196	3·1	0·64
Agra	433	4·7	0·35
Etah	9,732	2·0	0·63
Mynpoorie	7,758	0·5	0·57
Futtehgurh	5,710	3·2	0·86
Etawah	12,505	2·6	0·48
Cawnpoor	16,177	1·4	0·64
Dehra Doon	2,425	2·2	2·69
Bijnour	348	1·8	1·32
Terai	302	9·0	0·74
Bareilly	4,192	3·9	1·40
Jhansie	81	0·7	0·34
Humeerpoor	287	0·8	0·45
Total	201,577	..	..
Fusl Khurreef, 1869-70, to 31st May 1870	221,943	..	..
Decrease, 1871	20,366	..	..

REMARKS.

Ganges Canal.

The mean volume passing Roorkee gauge during the month was 5,546 cubic feet per second.

Volumes discharged—

Etawah Branch	Tail	24 c. ft. per second.	
" "	Escapes	281	" "
Cawnpoor "	Tail	222	" "
" "	Escapes	190	" "
Total		717	" "

There was little demand for water in the terminal divisions, owing to frequent and occasionally heavy showers of rain which fell at intervals throughout the month.

In the upper divisions there was a considerable demand during the first ten days: it subsequently decreased slightly, but remained fair until the close of the month.

Water was chiefly required for the irrigation of indigo, sugar-cane, and cotton pulleo.

Occasional showers during the month, and heavy rain on the 28th and 29th.

Eastern Jumna Canal.

During the early part of the month there was great demand (almost exclusively for sugar-cane), but it was temporarily diminished by a fall of rain on the 4th, after which there was a steady demand till the 28th, when there was a heavy fall of rain in the lower half of the canal. Three breaches occurred in the canal during the month, and it had in consequence to be closed on two occasions, viz., for a few hours on the 12th, and for two days on the 24th and 25th. Occasional showers throughout the month. Wind variable.

Doon Canals.

Good demand on the Beejapoor, Rajpoor and Kullinga watercourses. Little demand on the others, owing to frequent showers which fell during the month.

Rohilkhund Canals.

Slight demand for irrigation during the month.

Bundelkhund Irrigation Works.

Demand merely nominal.

Traffic Returns.

Slight increase in the up-carriage of food-grains. Large increase in the rafting business, which, however, received a sudden check on account of accidents to the Jadlie and Isdra Locks, both of which are closed for repairs.

* Gauge readings are now taken on the Solani Aqueduct. † The Etawah and Cawnpoor Branches have alternate weeks of high and low supply.

P. S. MARINDIN, *Capt., R. E.,*
Asst. Secy. to Govt., N.-W. P., Irrigation Branch.

ALLAHABAD;
The 30th June 1871.

No. 28 of 1871.

SUPPLEMENT TO

The Gazette of India.

SIMLA, SATURDAY, JULY 29, 1871.

OFFICIAL PAPERS.

A SUPPLEMENT *to the* GAZETTE OF INDIA *will be published from time to time containing such Official Papers and information as the Government of India may deem to be of interest to the Public, and such as may usefully be made known.*

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GOVERNMENT OF INDIA.

DEPARTMENT OF AGRICULTURE, REVENUE, AND COMMERCE.

FISHERIES OF PORT BLAIR.

Resolution by the Government of India in the Department of Agriculture, Revenue, and Commerce,—No. 6, dated Simla, the 27th July 1871.

READ again—

Dr. Day's Report on the Fisheries of Port Blair, published in the Supplement to the *Gazette of India* of the 11th June 1870.

Read also—

Paragraphs 11 to 13 of the Resolution of the Government of India in the Home Department, Nos. 11-17, dated the 4th January 1871.

Letter from the Home Department, to Colonel H. Man, Superintendent of Port Blair and the Nicobars, No. 442, dated the 21st January 1871.

RESOLUTION.—Dr. Day's report having been published, the Governor General in Council considers that the orders thereon cited above should also now be published in the Supplement to the *Gazette of India*.

Extract paragraphs 11 *to* 13 *of the Resolution of the Governmemt of India in the Home Department,—Nos.* 11-17, *dated the 4th January* 1871.

11. THE Governor General in Council has carefully perused Dr. Day's report regarding the fisheries of Port Blair, and the explanations furnished by Colonel Man. His Excellency in Council has also had under his consideration the remarks made by Dr. Rean, on the subject in his annual report. Admitting all the facts stated by Colonel Man, there is still sufficient

ground for Dr. Day's general view that the resources of the Settlement, as regards fish, are not properly utilized. It has never been laid down that the convicts shall always have *fresh* fish supplied to them. There is no doubt that fresh fish will not always be available, and that fresh fish are apt to spoil in hot weather, yet this is exactly the condition of things in British Burmah, where the bulk of the daily food of the people consists of fish.

12. The Governor General in Council considers that some system might be established to preserve the surplus fish, and to prevent it from being wasted. What is wanted is, that there should be an effort to catch fish on a larger scale, and means provided for regularly preserving all that is not sold when fresh. The Governor General in Council does not apprehend that there should be any difficulty in the matter. The resources of the Settlement for the supply of fish seem to be unlimited; all that is required is to *catch* more; and to do this it is only necessary to employ a larger establishment of convict fishermen. Salt is available apparently at a cost of about a half penny a pound, and possibly, if more extensively made, might be cheaper still. Wood is available in abundance for smoking. If, therefore, a regular establishment were kept up at which all surplus fish could be smoked or salted, or both, as soon as caught, there ought to be no difficulty in having a ration of fish, *either fresh* or *preserved*, every day for the entire convict population.

13. On one point, in regard to this subject, Colonel Man no doubt is right. The contract made by Captain Laughton does not seem to be so improvident as Dr. Day's report made it appear, and the system enforced by him is not, in the opinion of the Governor General in Council, deserving of the condemnation pronounced upon it in Dr. Day's report, which appears to have been written under a misapprehension of the real character of the contract. It is true that this system is incompatible with the proper *curing* of fresh; but no blame can properly be imputed to Captain Laughton on this account. The Governor General in Council is, therefore, glad to relieve that officer from any censure which may be supposed to attach to him with reference to the fishing contract.

From A. O. HUME, ESQ., C. B., Officiating Secretary to the Government of India, Home Department, to the Superintendent of Port Blair and the Nicobars,—No. 422, dated Fort William, the 21st January 1871.

I AM directed to acknowledge the receipt of your letter No. 1100, dated the 6th ultimo, on the subject of the publication of Dr. Day's criticisms on the management of the fisheries of Port Blair.

2. In reply, I am desired to state that the Governor General in Council regrets that by an oversight Dr. Day's report was published *in extenso*, before your replies to certain strictures therein contained had been received. On perusal of the explanations furnished by you, and other documents bearing on the question, His Excellency in Council, although unable to allow that the administration of Port Blair had utilized to the fullest extent the resources of the Settlement as regards fish, has come to the conclusion that the contract made by Captain Laughton was not so improvident as Dr. Day's report made it appear, and that the condemnation pronounced upon it in that report was based upon a misapprehension of the real character of the contract. His Excellency in Council therefore has, as you will have seen from paragraphs 11 to 13 of the Resolution of the 4th instant, relieved Captain Laughton and your administration from any censure that might be supposed to attach with reference to the fishing contract.

No. 29 of 1871.

SUPPLEMENT TO

The Gazette of India.

SIMLA, SATURDAY, AUGUST 5, 1871.

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GOVERNMENT OF INDIA.

DEPARTMENT OF AGRICULTURE, REVENUE, AND COMMERCE.

RAIN-FALL IN THE DISTRICTS OF THE NORTH-WESTERN PROVINCES.

From C. A. ELLIOTT, ESQ., Officiating Secretary to the Government, North-Western Provinces, to the Secretary to the Government of India in the Department of Agriculture, Revenue, and Commerce,—No. 1156A, dated Nynee Tal, the 20th July 1871.

IN reply to your letter No. 4, dated 27th June, I am directed to forward, for the information of His Excellency the Governor General in Council, an Abstract Statement of the average rain-fall in the Districts of the North-Western Provinces during the week ending 30th June 1871, and of the total fall from the 1st June 1871.

2. I am to add that so far the argricultural accounts from all parts of the Province are favorable.

Abstract Statement of average rain-fall in the Districts of the North-Western Provinces during the week ending the 30th June and total fall from 1st June 1871.

DISTRICTS.	Week ending 30th June 1871.	Total from 1st June 1871.	REMARKS.
Kumaon	5·0	14·0	
Gurhwal	3·3	11·4	
Dehra Doon	6·2	22·1	
Seharunpore	4·3	10·2	
Bijnour	3·5	11·3	
Moradabad	2·7	10·5	
Terai	5·5	14·7	
Bareilly	1·7	8·8	
Budaon	1·3	5·7	
Shahjehanpore	1·1	7·3	
Moozuffernuggur	2·5	4·8	
Meerut	1·9	6 2	
Boolundshuhur	1·5	4·1	
Allygurh	1·5	5·2	
Etah	1·5	7·0	
Furruckabad	1·9	5·1	
Muttra	2·6	6·2	
Agra	1·9	5·9	
Mynpoory	3·7	9·5	
Etawah	2·7	7·4	
Cawnpore	3·3	5·8	
Jaloun	1·9	7·6	
Jhansie	1·1	7·8	
Lullutpore	1·7	12·3	
Humeerpore	2·5	6·5	
Futtehpore	5·4	10·7	
Banda	3·5	9·9	
Allahabad	3·7	11·6	
Mirzapore	1·3	12·0	
Benares	2·4	10·4	
Jounpore	3·5	6·0	
Ghazeepore	2·6	7·0	
Azimgurh	3·4	5·4	
Goruckpore	6·9	9·6	
Bustee	2·0	5·2	

From C. A. ELLIOTT, ESQ., Officiating Secretary to the Government, North-Western Provinces, to the Secretary to the Government of India in the Department of Agriculture, Revenue, and Commerce,—No. 1178A., dated Nynee Tal, the 26th July 1871.

IN continuation of my letter No. 1156A., dated 20th July, I am directed to forward, for the information of His Excellency the Governor General in Council, an Abstract Statement of the average rain-fall in the Districts of the North-Western Provinces during the week ending 7th July 1871, and of the total fall from the 1st June 1871.

2. I am to add that so far the agricultural accounts from all parts of the Province are favorable.

Abstract Statement of average rain-fall in the Districts of the North-Western Provinces during the week ending the 7th July 1871, and total fall from 1st June 1871.

DISTRICTS.	Week ending 7th July.	Total from 1st June 1871.	REMARKS.
Kumaon	4·3	18·3	
Gurhwal	·5	11·5	
Dehra Doon	4·3	26·4	
Seharunpore	1·0	11·2	
Bijnour	2·4	13·7	
Moradabad	1·0	11·2	
Terai	5·5	20·2	
Bareilly	3·9	22·8	
Budaon	1·0	6·7	
Shahjehanpore	5·5	12·8	
Moozuffernuggur	·4	5·1	
Meerut	·4	6·6	
Boolundshuhur	1·4	4·8	
Allygurh	·4	5·4	
Etah	1·6	8·6	
Furruckabad	·4	5·2	
Muttra	·9	6·5	
Agra	·2	6·0	
Mynpoory	·9	9·7	
Etawah	·4	7·7	
Cawnpore	·6	6·1	
Jaloun	·7	7·8	
Jhansie	·2	7·9	
Lullutpore	·7	12·7	
Humeerpore	1·2	7·7	
Futtehpore	1·8	12·5	
Banda	1·7	11·7	
Allahabad	2·5	14·1	
Mirzapore	1·2	13·2	
Benares	·8	3·1	
Jounpore	2·1	7·3	
Ghazeepore	2·3	9·4	
Azimgurh	1·6	6·9	
Goruckpore	4·3	13·9	
Bustee	2·9	8·1	

PROSPECTS OF THE COTTON CROP IN THE CENTRAL PROVINCES AND THE BERARS.

From HARRY RIVETT-CARNAC, ESQ., C. S., Cotton Commissioner, to the Secretary to the Chamber of Commerce, Bombay,—No. 3448, dated Allahabad, the 19th July 1871.

As the season for selling and exporting cotton in the Central Provinces and the Berars has come to a close, and the season for cultivating the crop, with all its anxieties, is now upon us, I follow the usual practice, and forward, for the information of your Chamber, a report on the state of the weather during the last six weeks, together with the opinions of the officers in the Cotton Districts of Central India on the prospects of the growing crop.

Report on the trading season to follow.

2. The usual report on the leading points of the past trading season in the Central Provinces and the Berars will reach your Chamber in the course of the next fortnight. It has been delayed in order that full statistics of the cotton trade at the chief ports of British India during the first six months of the current year may be included in the report, which it is hoped may, by the system that it is now proposed to adopt, be more complete than usual, and thus prove of more than ordinary interest.

Crop estimates borne out by the exports.

3. It will not, however, have escaped the notice of your Chamber, from the reports duly submitted by this Department, that at the end of the month of May last, when the season may be said to have closed, the total quantity of cotton exported from the railway stations of the Central Provinces and the Berars to Bombay amounted to about 235,000 bales of 400 lbs. each, and that thus the estimates framed by the officers of this Department and submitted to your Chamber have not turned out to be very incorrect.

Tracts which chiefly contribute to the exports.

4. Before quoting from the reports of the Assistants on the state of the weather and the prospects of the crop, it will, I think, be convenient to try and indicate as clearly as possible the tracts to which these reports refer. The subject has, it is true, been fully explained from time to time in my several annual reports; but as copies of these reports may not always be at hand, an approximate statement of the area sown with cotton in each division, and the quantity usually available for export, will, it is hoped, help to convey a sufficiently correct idea of the probable effect of a favourable or unfavourable season in the circles treated of in the reports of the Assistants which will be hereafter quoted.

Statement of the area sown with cotton in the Central Provinces and the Berars.

5. The following table gives the area sown with cotton in the Districts of the Central Provinces and the Berars during the past season, and as during the last few years, although a slight increase has generally been noticed, no very great variation has occurred in this acreage, these figures may be taken to represent with sufficient accuracy the area sown during the present year. The figures of the current season will not be received from the District authorities until later in the year. They will, however, be forwarded without delay to your Chamber as soon as received.

Statement showing approximately the area under Cotton cultivation in the Central Provinces and the Berars, and the quantity of Cotton annually exported.

Divisions.	Districts.	Acres.	Quantity of Cotton annually exported (in bales of 400 lbs.)
CENTRAL PROVINCES.			
NAGPORE ...	Nagpore	96,287	These Districts send about 30,000 bales to Bombay from the markets of Hinguns-ghât, Arvee, Wurdah, and Deolee. Much cotton is consumed locally.
	Bhundara	.....	
	Chandah	57,527	
	Wurdah	181,119	
	Balaghât	.....	
JUBBULPORE ...	Jubbulpore ...	33,994	Export about 15,000 bales. The trade used to be with Mirzapore, but is turning towards Bombay since the opening of the main line of the Great Indian Peninsula Railway. A considerable local consumption affects the exports.
	Saugor	28,730	
	Dumoh	18,900	
	Seonee	6,431	
	Mundlah	1,517	
NERBUDDA ...	Baitool	1,950	
	Chindwara	23,343	
	Hoshungabad ...	21,198	
	Nursingpore ...	53,378	
	Nimar	24,869	
CHUTTEESGURH ...	Raipore	77,250	These Districts send some 7,000 bales to the Orissa country.
	Sumbulpore ...	75,750	
	Belaspore	65,974	
	Upper Godavery ...	719	
Total, Central Provinces, Acres ...		768,936	
THE BERARS.			
EAST BERAR ...	Oomraotee	361,210	These Districts export all their cotton to Bombay. In round numbers the annual export amounts to about 80,000 bales, Oomraotee being the chief mart.
	Ellichpore	191,257	
	Woon	134,543	
WEST BERAR ...	Akola	446,498	Annual exports to Bombay about 140,000 bales. Khangaon and Akote being the chief markets.
	Booldana	291,762	
	Bassim	64,157	
Total, Central Provinces, Acres ...		768,781	
The Berars, Acres		1,489,427	
Total, Central Provinces and the Berars, Acres.		2,258,208	Total annual exports to Bombay from 250,000 to 275,000 bales; to other parts of India 10,000 bales.

ALLAHABAD;
Dated 19th July 1871.

HARRY RIVETT-CARNAC,
Cotton Commissioner.

Sowing season in Central India.

6. The cotton-sowing season in the Districts of Central India, to which this report chiefly relates, commences, as your Chamber knows full well, immediately after the setting-in of the monsoon, or rainy season. According to Native calculation, the rainy season commences on the 1st day of the month of Mroog, which falls on the 5th of our month of June, and my reports submitted during former years will have shown you the correctness of this calculation, and that heavy rain generally sets in in the Wurdah and Poornah Valleys between the 5th and 15th of the month.

THE WURDAH VALLEY.

The Wurdah Valley.

7. The following extracts from the weekly reports of Mr. Noble, the Assistant to the Cotton Commissioner in the Wurdah Valley Circle, including the Districts of Nagpore, Wurdah (Hingunghât), and Chandah, which as the statement will show contribute annually to the Bombay market about 30,000 bales of the finest cotton grown in India, describe the state of the weather in that tract from the commencement of the monsoon up to date.

Mr. Noble's reports.

Writing on the 13th June, Mr. Noble says: "The weather during the past week has been rainy; regular monsoon weather, but unaccompanied by any heavy bursts of rain and wind which generally usher in the monsoon, except on the last day of the week (10th), when above one inch of rain fell. The total rain-fall from the 6th to the 10th was 1·72 inches." He also adds: "The weather is still rainy and cloudy: on the 11th, 1·20 and on the 12th, 0·23 inches of rain fell. The rain has for the present stopped all work on the Nagpore Farm."

Again, in his report of the 21st June, he adds: "During the past week 5·41 inches of rain fell: this makes a total of 6·27 inches from the 5th instant. Field-work is suspended, and the seed will be sown at the first favourable opportunity.

"Sowing operations have not yet commenced in any part of the District, and there is not much chance of the sowings being commenced for some days."

Fine weather necessary for sowing operations.

8. I have mentioned in a former paragraph that the sowing of the cotton-seed commences as soon as possible after the first downpour of rain. But to admit of sowing operations being conducted, a break of fine weather is necessary. The continuous rain in the Nagpore country stopped progress at first, as the following extract from Mr. Noble's report of the 28th June will show:

"During the past week the ground has been too wet to allow sowing operations to commence. The last few days were comparatively fine, and sowing was commenced on the farm yesterday. The sowings have now, I think, been generally commenced through the District."

9. The latest reports from Mr. Noble are as folllows: Under date the 6th instant he says—"The cotton sowings are, I think, almost completed throughout the District, or at least will be so by the end of this week, and jowarree *(Holcus sorghum)* sowings have commenced in some parts in the lighter soils. The weather continued fine until last night (5th), when heavy rain again commenced, and the rain promises to continue, which, of course, will cause the sowings to be suspended until the weather has again cleared up."

And again, on the 12th instant, he writes: "On the 6th and 7th July nearly seven inches of rain fell. This heavy rain has again stopped the sowings, and although we have had no heavy fall of rain since, still the ground is almost too wet for carrying on the sowing operations, but an attempt will be made to sow again this afternoon.

"Most of the cotton sowings are, I think, undoubtedly over, and the young plants are looking well; the larger plants had four to five leaves, while in some fields the plants had barely made an appearance above ground. The different people questioned by me gave favourable replies when asked about the state of the cotton."

Weather in the Nagpore Division similar to that at Nagpore.

10. The remarks in these extracts, although referring directly to the state of the crop in the Nagpore District, describes with sufficient accuracy the state of the weather in the other Districts of the Division. The District reports show that much rain fell, the figures from 1st of April up to the end of June being as follow:

	Inches.
Nagpore	12·5
Bhundara	15·43
Chandah	8·51
Hingunghât	7·56

Prospects not very favourable.

11. Of the Wurdah Valley crop the prospects cannot then be said to be at present very favourable. There has undoubtedly been quite enough rain for the present; but fine weather will do much to freshen up the crop, and, as a rule, as a choice of evils, it is perhaps better to have too much than too little rain. The report from Mr. Noble, which should reach me before this letter has passed through the Press, and which will be added as a postscript, will enable me to give further, and, I hope, more favourable, information on this subject.

Other Divisions of the Central Provinces.

Not so important to the cotton-merchant as Nagpore.

12. If the area statement of the area under cotton cultivation in the Central Provinces and the Berars attached to this report has answered the purpose for which it was intended, then it will be seen that, with the exception of Nagpore, none of the Divisions in the Central Provinces furnish any large supplies of cotton to the export market, and that, therefore, the state of the weather in the Divisions, other than that already noticed, will not have so very much interest for the cotton-merchant.

Still, it may be convenient to notice that in the Districts of the Jubbulpore and Nerbudda Divisions, the rain-fall has been heavy. Up to the end of June the rain-fall at Jubbulpore had amounted to 12·68 inches.

From the Districts lower down the Nerbudda Valley, the reports indicate that the rain-fall has been unusually severe, and that fine weather was wanted. The figures of these Districts are given below:

	Inches.
Nursingpore	20·7
Hoshungabad	15·2

The latest reports show that the weather cleared up at the end of the month, the Deputy Commissioner of Nursingpore reporting—"The break has allowed the preparation of the land for sowing."

13. Nimar, adjacent to Berar, has been an exception, the rain-fall there amounting to but 3·05 inches, and the state of the weather there assimilating to that experienced in West Berar to be noticed later. The Deputy Commissioner reports—"Rain is wanted to complete sowings." These District seports only bring us down to the end of June, and more rain has since fallen.

The Chutteesgurh Country.

14. The rain-fall for these Districts up to the end of June last is shown as follows:

	Inches.
Raipore	12·77
Sumbulpore	7·79
Belaspore	10·31

In Raipore, the great grain-supplying country, the sowings are said to be completed; so also in Sumbulpore and Belaspore: the prospects of the crop being good. But very little cotton comes from here however.

Prospects favourable.

15. At Sironcha, on the Godavery, but 5·34 inches of rain had fallen up to the end of June, "the rain holding off in a very provoking manner," as the Deputy Commissioner reports.

16. In the following statement the rain-fall during the month of June of the present year and that during the preceding year for the same period is shown for some of the most important Districts:

Rain-fall during the month of June.

	1870. Inches.	1871. Inches.
Nagpore	9·49	12·5
Jubbulpore	14·16	12·68
Hoshungabad	7·10	15·02
Raipore	11·41	12·41

THE BERARS.

17. Turning to our most important cotton-field, the Districts of the Berars, lying in the fertile valley of the Poornah, it will be found that in the portions adjoining the Wurdah Valley (East Berar) the weather at first somewhat resembled that in the Nagpore Division of the Central Provinces, described in the extracts already quoted from the report of Mr. Noble.

18. Under date the 10th of June last, in the first weather report submitted for the season, Mr. Nago Rao Jeyakrishna, Assistant to the Cotton Commissioner in East Berar, thus reported:

East Berar.

"The weather has been cloudy and oppressive for the last few days, and some heavy showers of rain have fallen in some parts of the country, especially towards the Ellichpore Hills. The rain also fell very heavily here about an hour ago, and the fall amounted to 1·10 inches. The total rain-fall here since the setting-in of the monsoon amounts to 1·30 inches."

In a subsequent report under date 17th June, he adds: "The weather has been cool and damp, and slight rain has also fallen here and everywhere since the setting-in of the monsoon, but the total rain-fall, which amounts to only 1·84 inches here, is not sufficient to render the cotton land fit for sowing, as it has not saturated the soil deeper than about 3 or 4 inches." In his report of the 23rd June, Mr. Nago Rao continues: "Since the setting-in of the monsoon, the weather has been such as could be desired. The rain has been falling more or less every day, and in every part of the country. The fall at Oomraotee up to the 21st amounted to 3·42 inches."

Mr. Nago Rao's report.

19. Towards the commencement of the present month, however, some anxiety began to be felt on account of the rain holding off. Under date the 3rd July, Mr. Nago Rao wrote:

"The reports which I have just received from different parts of the country show that the cultivators have now been busily engaged in sowing cotton and toor, that some of the cotton and toor land has already been sown, and that the young plants of cotton are looking yellowish for want of rain, which is now required everywhere. The reports also mention that the rain which fell hitherto in this part of the country was not general. On the 8th instant, he reports: "I am extremely glad to report, however, that luckily the long-looked-for rain returned yesterday evening, and saved the threatened crop for the time being. It has not been heavy, but such as could be desired. The last report is dated the 14th, and runs as follows:

"Since the last six days the weather has been such as could be desired. We are at present getting sunshine during the day, and the rain falls generally towards the evening or at night. This is generally considered to be very good, as it enables the cultivators to carry on the various farming operations during the daytime. The total rain-fall here to date amounted to 3·38 inches since the 6th instant, and to 9·86 inches since the setting-in of the monsoon.

"The reports which I have now received from the various parts of the country show distinctly that the rain-fall till the 8th instant was not well and equally distributed throughout the country; that consequently, the young cotton-plants in some parts looked somewhat withered; that since the 9th instant the fall has been general; and that the prospects of the growing crop are now favourable."

20. The above extracts will show that the weather in East Berar has not been unfavourable for the young crops, for though the break of open weather which usually follows the first

burst of rain seems to have somewhat affected the young plants, there is no evidence of any serious injury having as yet been caused.

21. In West Berar (the Khangaon and Akote country), the rain-fall had been much more scanty, and I am sorry to have to state that the crops have undoubtedly suffered in some degree from want of moisture.

West Berar.

22. Mr. Dunlop, in his report of 7th June, says: "The monsoon broke last evening at about 9 o'clock. There have only been a few cents of rain, and at this time the weather is fine, but there can be no doubt that the monsoon has reached us, and we may expect heavy rain shortly."

Writing on the 21st idem, he says: "The weather during the week has been exceedingly mild, and only light showers of rain have fallen, making altogether a fall of 40 cents. In some instances the cultivators have commenced sowing, but they require more rain, and I doubt if many fields will be sown before we have heavier rain. The weather is unsettled-looking, but, to the surprise of many, the rain holds off, and the season will probably be a late one.

"Since the submission of my last report, I have visited the Cotton Farm. I am quite satisfied so far with the results of early sowing, and what is still more satisfactory, the cultivators in Allusna acknowledge the advantage we have gained, and there is more sowing going on in that village than in any other that I passed during the two days I spent in the District."

23. In his report of the 29th June, Mr. Dunlop remarks regarding the want of rain: "The weather," he says, "during the week has been dry, and we have had nothing more than a few light showers of rain, the quantity registered being only 0·44 inches, making the total for the season 3·0 inches."

24. Mr. Pillans, the Superintendent of the Sheagaon Farm, in his report of the 26th idem, says: "The weather of the past week has not been altogether favourable for cotton, being rather too dry: we had four very drying days, and if the dry weather had continued until to-day, I should have had to have irrigated the young cotton-plants. However, on Saturday morning, we had a very nice shower, and yesterday a nice gentle rain fell, which has set up the cotton-plants."

25. On the 5th instant, Mr. Dunlop further states: "I regret to say that the weather has been unfavourable for the agricultural interests. There has been an entire absence of rain, and the cotton which was sown is now being burnt up by the heat. I should think that in this part of the District about 40 per cent. of the crop has been sown and will suffer. The remainder has been held over until more rain falls.

"On the whole, prospects are not good, and the longer the rain holds off, the worse they will become. We have only had 3 inches of rain up to date."

26. Mr. Dunlop's last report, dated the 12th instant, is hardly more favourable. He says: "In my last report I informed you that we were suffering from a protracted drought, which was very hurtful to the young crops, and I now regret to say that during the past week the same state of affairs has continued, and further serious damage has occurred to the cultivators.

"In the early part of the week I visited Julgaum, and had an opportunity of seeing much of the country in that direction. I found the cultivators there sowing their cotton, with the intention that it should germinate after the next rain. The sowing of the Jurree crop which is cultivated in the Julgaum Talook, is generally ten or fifteen days later than the sowing in this part of the District, so that the cultivators entirely lost the benefit of the early rain, and have now reluctantly to wait for a change in the weather. The delay is universally lamented, and in some villages the people said that if the rain held off longer, they would give up the attempt to sow cotton his season. The rain-fall registered at Julgaum amounted to only 2·80 inches.

"During the week I have also visited Balapore. In that talook the bulk of the cotton-crop has been sown. The earliest sown is almost totally destroyed by the drought, but what was put in the ground later has not yet germinated, and may still make its appearance after the first rain. The cultivators look on the prospects as very gloomy, and I admit that I have never seen them less favourable.

"With regard to the probable area set aside for cotton cultivation, my impression, after having traversed a considerable portion of the District, is, that had the weather been favourable, there would have been no decrease; but that now a considerable number of the people think it useless to sow cotton at so late a period, and that consequently on this account the area may be somewhat diminished. The longer the rain holds off, the more will this feeling be established, and it seems almost premature to give even this approximate opinion on the subject.

"While such is the general state of the District, you will be prepared to hear that the Government Farm has suffered severely, and I regret to say that the last week of drought has done distressing havoc with our young cotton-crop, which in my last report I informed you was then giving way. Every day of this weather tells upon the farm, and as it is desirable to give you the latest information, I made a careful inspection of all the fields this morning in company with Mr. Pillans. Two fields of Bunnee and Jurree have been saved by irrigation. The plants in them are backward, but healthy enough and out of danger. In other fields there are places more moist than others where the plants are still surviving, and will, I hope, pull through; and taking all these into the calculation, I have estimated that on the whole we may at present have 10 acres of a standing crop, but of this about 3 acres will probably succumb unless the rain comes at once. The remainder, about 63 acres, has been almost totally destroyed. Some five or six per cent. of the plants may be seen in the fields, but these are poor and sickly-looking, and there are so few of them that we have resolved to plough up the field and entirely re-sow them. They are now being prepared as rapidly as possible, but it is useless to attempt re-sowing before there is a change in the weather."

27. The statements of the Officers of the Cotton Department are borne out by the reports received from the Deputy Commissioners of the several Districts in Berar. These reports which are brought down to the 30th of June are abstracted below:

EAST BERAR.—*Reports for fortnight ending 30th June.*

	Fall of Rain from 1st April.	During the fortnight.	Total from 1st April.	REMARKS.
Amraotee ...	2·64	3·43	6·7	Sowing of the khurreef-crops has been nearly completed, and so also cotton.
Ellichpore ...	...	...	4·22	Cotton and toor are being sown; ground is being prepared for rubbee crops.
Woon (rainfall not given)	...	...	...	Throughout the Districts, cultivators are busily engaged in preparing ground and sowing khurreef-crops *viz.*, there being a deficiency of rain during the latter half of the fortnight, very little jowarree sowing has been progressed with.

WEST BERAR.

	Fall of rain during the fortnight.	Total from 1st April 1871.	REMARKS.
Akola	1·9	3·93	The cultivators have commenced sowing. Cotton-seed has not germinated: more rain necessary, only 3 inches having fallen during the month.
Bassim	1·48	3·5	As rain is holding off, sowing operations have not yet been generally undertaken. Where commenced, they have been put a stop to. If rain in sufficiency does not fall within the next ten days, it will be a very serious matter.
Booldana	0·87	3·03	Sowing operations have commenced only in places where there has been sufficient rain; in others they have been retarded: rain is much wanted.

28. The reports for the fortnight ending the 14th instant are expected immediately, and if received before this letter passes the Press, will be added as a postscript.

Rail-fall this season as compared with last.

29. The following statement shows the rain-fall in the chief cotton-growing tracts of the Berars up to the end of June 1871, as compared with the same period last season, and will show how scanty the fall has been this year:

	1870, to 30th June.	1871, to 30th June.
Oomraotee	14·35	9·86
Bassim	5·54	3·35
Booldana	11·09	4·54
Akola, including—	6·5	3·93
Balapore	7·2	4·0
Akote	4·98	4·30
Julgaum	6·63 to 15th July.	3·59 to 15th July.
Sheagaum	8·62	3·00

THE NORTH-WEST PROVINCES.

30. Turning from Central India to the North-West Provinces, we find that the weather has, in some cases, been more favourable to the crops. Some damage, however, has been experienced at Allahabad from unusually heavy rains.

Boolundshuhur Farm.

31. Mr. Simpson, Superintendent of Experiments at Boolundshuhur, says in his report of the 10th June: "The weather in the beginning of the week was dull, and several heavy showers of rain fell on the 5th and 6th. Since then the sky has been alternately clear and cloudy, with the wind blowing mostly from the east.

"The rain-fall of the past week is 0·63 inches, making up to date a total of 2·28 inches since the 1st April."

He further reports on the 26th idem: "The weather in the beginning of the week was very cloudy, with westerly wind, but on the evening of the 21st it changed suddenly to the east, and almost immediately after it commenced to rain.

"The total area sown with cotton up to date is 81 acres 3 roods 35 poles. The young seedlings are now progressing very well: in some of the first-sown fields of Hingunghât and Bunnee, the plants are fully one foot high."

32. On the 8th July he again writes: "The weather in the beginning of the week was clear and hot and a strong breeze from the west, which dried things up greatly, but on the evening of the 3rd the wind changed from west to east. Since then the sky has been much clouded, and the atmosphere heavily charged with moisture, which is very favourable for the young plants and crops in general." And again, on the 15th idem, he adds: "The weather in the beginning of the week was very dull, and several heavy showers of rain fell on the 9th and three following days: the wind was mostly from the east. In the end of the week the sky was clear with passing clouds, which was very favourable for the crops in general.

"The rain-fall of the past week was 3·85 inches, making from 1st April up to date a total of 8·9 inches."

33. In addition to the farm at Boolundshuhur, another for experiments with all classes of produce has recently been established at Allahabad, from whence weather and crop accounts are regularly received. The following extracts from the weekly reports of Mr. Phillips, the Superintendent, show the kind of weather that has been experienced.

The weather at Allahabad.

34. In his report of the 10th instant, he says: "The weather during the week has been extremely favorable for the development of the young plants, which have made considerable progress since the heavy rain we had the week before."

On the 17th instant, however, he writes: "The weather has been generally very wet, with but little sunshine to counteract the effects of the rain. Owing to the excessive wet, the

young cotton-plants are suffering severely: the leaves of many are rotting off. The varieties that have withstood the rains best are the country kind and the Berar Jurree."

35. These are certainly not encouraging prospects, and the ill-effects of the excessive rain at Allahabad are but too apparent. During my visits to the farm I have examined the condition of the young cotton-plants, and find that in loose soils, or in spots where from the lie of the land the drainage is bad, a large percentage of the plants have died off—in the former case from being buried by the earth which readily washes with the rain, and in the second case from the excessive moisture. The tap-roots are first affected, the injury rapidly spreads, and the whole plant soon decays.

36. The rain here (at Allahabad) has been particularly heavy. We have been having much more rain than was wanted, and could well have spared a portion to the Berar country. The rain-fall at Allahabad is given below:

			Inches.
From 1st to 30th June	...	...	15·48
From 1st to 19th July*	...	...	16·77
Total		...	32·25

General conclusions.

37. It must, then, I fear be admitted that the prospects in the most important cotton-growing tracts in the Central Provinces are not at present very favourable. But all former experience shows us that the cotton-plant in that part of India is particularly hardy, and often, after alarming accounts of the damage done by rain or drought, we have learnt that the reports have been somewhat exaggerated, and that the crop has pulled through without much distress. The cultivator, who is naturally anxious about his crop, is never a particularly sanguine creature, and often sketches the season's prospects in the gloomy colours of his own spirits. But the effect of the weather at the model farms may be taken as representing very fairly the effect of the monsoon throughout the circle in the centre of which the farm is situated. From the reports of the officers who superintend these farms, quoted above, it will be seen that, in the Wurdah Valley and round Oomraotee, there is at present no serious cause for anxiety. In the Akola District (the Khamgaon and Akote country) the crop has certainly suffered from the want of rain. I hope that some portion of the damage may yet be repaired if seasonable weather returns. Before this letter leaves the Press, I hope to obtain the latest advices by telegraph, and to include them in this report. At Allahabad, it will be seen, we have suffered from exactly the opposite cause that injuriously affected the Sheogaon Farm.

38. You have doubtless received accounts from Khandesh. I was sorry to hear recently in a private letter that the weather there had resembled that experienced in the West Berar country.

Further report to be submitted after the personal inspection.

39. The Assistants have now been instructed to proceed on tour through their Divisions to ascertain the effect that the weather has had on the crop, and the result of their inquiries will be duly communicated to your Chamber. I am on the eve of starting on a tour through the Central India Cotton Districts, and my next report to your Chamber will, I trust, contain a less unfavourable account of the prospects of the crop, founded on personal observation and inspection, and on inquiries made during my tour.

Latest information received.

POSTSCRIPT.—*Dated Allahabad, 21st July* 1871.—Since my letter has been in the Press, the following further information has been received from the Cotton-growing Districts:

WEST BERAR.

2. Mr. Dunlop writes under date the 19th instant as follows:

"During the past week considerable improvement has taken place in the weather generally, and heavy rain must have fallen in some parts of the country. Every evening massive clouds rolled up from the south-west, and the days were dull, as if rain must fall. But this part of Berar is peculiarly unfortunate, and during the week Sheagaum has been favoured with only 64 cents of rain, which has had little effect on the soil in its present state.

"Khamgaon and the country in that neighbourhood has fared no better. From the 9th to the 13th of the present month 77 cents were registered, making the total this season 2·83 inches—one inch less than we have had here.

"From Ballapore, also, the accounts areunfavourable: the total rain-fall up to the 17th instant being only 4 inches; but since then some showers have fallen, of which I have not yet received an account.

"The Tehseeldar (Native Magistrate) of Akote writes that there is great need of more rain in his circle, but he does not state how much has fallen up to date.

* On the 15th July 7·85 inches of rain fell at Allahabad.

"The prospects of this season's cotton-crop are every day becoming worse. We have clearly had monsoonish weather during the week, and yet little or no rain, and now it is feared that another break of fine weather may set in before this District receives a sufficient supply. In such a case the effect would be disastrous in the extreme both to the cotton and jowarree crops. The cultivators are now hesitating what to do with their fields, and a little more unfavourable weather will give the turn to the scale, and a large number in this locality will abandon the attempt to cultivate cotton this season.

"On the night of the 13th instant about half an inch of rain fell at Allusna, and on the morning of the 14th, I had the re-sowing commenced. Unfortunately, we have had no rain since then, and the fresh seed will be imperilled if the rain holds off much longer, but it is clearly proper to go on sowing, for if delayed, it will become too late in the season. Up to last evening 26 acres of Jurree and 10 acres of Bunnee had been completely re-sown, and some land, where the plants have only partly died, re-sown by the hand. The hybrid seeds have also been put into the ground. The remaining land is now being sown as speedily as possible. Mr. Pillans is of opinion that about 16 acres of the first-sown cotton will be saved.

"It is impossible to foretell what the farm will turn out this season, but at present the prospects are very bad, and the current week will show whether the cotton-crop is to get a start or not."

3. Mr. Pillans, the Superintendent of Experiments at Sheogaon, writing on the 17th to Mr. Dunlop, reports as follows:

Report of the Superintendent of Experiments, Sheogaon.

"I have the honor to report on the state of the farm at this place for the past week.

"It was not until the night of the 13th that we had any rain, the weather in the forepart of the week being dry and killing the cotton-plants very fast. On the night of the 13th we had a nice shower of 54 cents, which put life into many of the cotton-plants that looked nearly dead. I think now, by the look of the early-sown Bunnee fields, that there may be about 16 acres of plants left altogether: all the rest will have to be re-sown. Two acres that I irrigated,—one of Bunnee and one of Jurree,—are looking very well now.

"Owing to the fall of rain on the night of the 13th I commenced with the second sowing. On the 14th I sowed 8 acres of Jurree and 3 of Toor, and on the 15th about 18 acres of Jurree was sown: in all about 26 or 27 acres of Jurree was sown for the second time. One acre of indigo and half an acre of maize was also sown on the 15th. The *bukhurs* (Native ploughs) were hard at work getting the fields ready all day on Saturday.

"Since Friday last we have had little or no rain; the weather has been very cloudy, and rain has threatened every day. To-day the sky is very cloudy, and there seems to be rain in the clouds, but cannot get down: the wind still prevails, and no doubt the rain is carried away by that.

"The Koonbees' (Native cultivators) cotton has suffered like our own. I went through some of their fields, and there I saw that lots of the plants were dead. Many of them say that they will sow their fields with jowarree, as it is too late for cotton now.

"Now that the rain has fallen, I shall be busy sowing up the cotton, jowarree, tobacco, &c. I hope that the rain will fall to help me—a thing it seems very doubtful about doing.

"Our total rain-fall up to date is 3·8."

The following information has been received by telegraph:

WURDAH VALLEY.

Mr. Noble telegraphs from Nagpore as follows:

News by telegraph of the crops.

"21st July, 7-15 A. M.—Heavy, continued rains at present. Cotton on farm sickly. From District, accounts as yet good."

EAST BERAR.

Mr. Nago Rao telegraphs, under date 20th July, noon:

"Rain has been falling heavily since last night, here and everywhere."

WEST BERAR.

Mr. Dunlop's telegram of the 20th July, 9-15 A. M., is as follows:

"A favourable change in the weather took place yesterday; one and-a-half inches of rain-fall. More rain expected, and prospects better than before."

N. W. PROVINCES.—BOOLUNDSHUHUR.

The Collector of Boolundshuhur telegraphed to me yesterday (20th July) as follows:

"Weather favourable; crops in excellent condition."

HARRY RIVETT-CARNAC,
Cotton Commissioner.

GOVERNMENT OF INDIA.

LEGISLATIVE DEPARTMENT.

Abstract of the Proceedings of the Council of the Governor General of India, assembled for the purpose of making Laws and Regulations under the provisions of the Act of Parliament 24 & 25 Vic., Cap. 67.

The Council met at Simla on Tuesday, the 25th July 1871.

PRESENT:

His Excellency the Viceroy and Governor General of India, K. P., G. M. S. I., *presiding*.
His Excellency the Commander-in-Chief, G. C. B., G. C. S. I.
The Hon'ble John Strachey.
The Hon'ble Sir Richard Temple, K. C. S. I.
The Hon'ble J. Fitzjames Stephen, Q. C.
The Hon'ble B. H. Ellis.
Major-General the Hon'ble H. W. Norman, C. B.
The Hon'ble F. R. Cockerell.
The Hon'ble R. E. Egerton.

DUTIABLE GOODS TRANSPORT BILL.

The Hon'ble SIR RICHARD TEMPLE moved for leave to introduce a Bill to regulate the transport by Railways of dutiable goods to places beyond the customs line. He said that one result of the rapid extension of Railways in India had been that large quantities of goods were carried across our frontiers and serious frauds practised in the evasion of the customs duties, not through any fault of the customs officials, but through the fault of consignors or consignees. When goods had to cross a customs line, they could be dealt with in two ways—there must either be a vexatious system of examination at the line itself, or there must be a system by which all despatchers of dutiable goods might be obliged to take out passes on despatching the goods, and by which despatchers of non-dutiable goods might be compelled to declare that they were so. There were of course cases, notably that of salt, in which the carriages conveying it might be easily examined on crossing the customs line; but it appeared, on the whole, that the best plan was to strike at the root of the evil, and provide that all goods should be protected with a pass. In order to give the Council an idea of the intention of the Act, he would ask leave to read the third and fourth sections.

"3. Any person wishing to forward dutiable goods or any package containing a dutiable article by any public conveyance to any place situate across a customs line, may apply to the Head of such customs line or to some officer duly authorized by him in that behalf for a pass.

"The said pass shall be in duplicate, in such form as the Local Government shall, from time to time, direct, and shall be granted by the Head of the said customs line or the officer so authorized as aforesaid, on payment of the duty which according to law would be payable at the customs line in respect of the goods or article for or in respect of which the pass is granted.

"4. Whenever any person not having the customs pass mentioned in section two tenders a package for transport by a public conveyance to a place across a customs line, the booking-officer shall, before booking such package for transport, require such person to sign a declaration that the package contains no dutiable article."

These two sections were the leading provisions of the Bill; all the rest had to deal with penalties and other subsidiary details. He hoped that, after hearing this explanation as to the scope of the Bill, the Council would grant him leave to introduce it.

The Motion was put and agreed to.

OATHS AND DECLARATIONS AMENDMENT BILL.

The Hon'ble MR. STEPHEN introduced the Bill to amend Act No. V of 1840 (concerning the Oaths and Declarations of Hindoos and Mahometans), and moved that it be referred to a Select Committee with instructions to report in six weeks. He said that the necessity for this Bill arose from the fact that the provisions which at present allowed of the substitution of declarations for oaths, extended only to witnesses, and did not embrace the case of jurors in criminal trials or Coroner's inquests, for whom it was desirable to provide. MR. STEPHEN had originally proposed to deal generally with this subject in the Evidence Bill, and several sections had been inserted in that Bill for this purpose. One of those provisions was that if the Court considered that a witness felt any particular form of oath especially binding, that particular form might be employed. The one object of oaths was to increase the likelihood of people telling the truth, and if one form of ceremony was more likely than another to secure this end, it was, MR. STEPHEN thought, only reasonable that this form should be adopted. The essential part of the present Bill was, however, the provision that, in all cases, a solemn declaration might be substituted for an oath. Moreover, the Act which it was proposed to amend, extended only to Hindús and Muhammadans. There was no possible reason for this restriction. Not to speak of Christians, there were so large a number of strange religions with which the Government and Courts of this country came in contact, that it was desirable to make the provision in the widest possible terms.

The Motion was put and agreed to.

CHAUKÍDÁRÍ ACT EXTENSION BILL.

The Hon'ble MR. STRACHEY presented the Report of the Select Committee on the Bill to authorise the extension of the Chaukídárí Act to places where there is no jamadár of Police.

LOCAL EXTENT ACTS BILL.

The Hon'ble MR. COCKERELL moved for leave to introduce a Bill for declaring the local extent of certain Acts of the Imperial Legislative Council. He said that the Bill related to (*1st*) Acts of a general character passed by the chief legislature since 1834, which were capable of being applied to the whole of British India, but contained in themselves no express definition of their local extent; and, (*2nd*), Acts which, though for the most part in general operation in the Non-Regulation, in common with the Regulation, Provinces, had never been legally extended to the former.

As the sole object of the Bill was to remove any doubt as to the intended local extent of Acts applicable to all the British territories in India, it would not include any Acts of more limited application, or whose local extent was already otherwise sufficiently defined.

The Bill was designed on the same principle as a Bill for declaring and consolidating the law relating to the local extent of certain Regulations and Acts, which had for some time past been before the Council, and was intended to form a connecting link between that measure and the Bills for declaring the law in force in the Panjáb and elsewhere, for the introduction of which leave was recently obtained.

The general nett result of these and other projected measures of a similar kind for declaring the law in force in the different Non-Regulation Provinces would be to simplify and render easy of accomplishment what had hitherto been an intricate, he might say almost impracticable, task, namely, the ascertainment of the entire operative law on any given subject within any particular portion of this vast empire.

As no alteration of the substance of the existing law was contemplated by this Bill, it would not be open to the objection that it was in any way calculated to limit the power now vested in the Local Councils of affecting, by their legislation, Acts passed by the chief legislature previous to the coming into operation of the Indian Councils' Act of 1861.

The Hon'ble MR. STEPHEN observed that the intention of the Bill was merely to supply an omission which occurred in many of the older Acts, namely, a distinct declaration of their local extent. The result of this omission was, that there was some doubt in the case of such Acts as to whether they were intended to apply to the whole of British India or not. This doubt it was now proposed to clear up, and the Bill was calculated to facilitate the administration of the law.

The Motion was put and agreed to.

PENSIONS' BILL.

The Hon'ble MR. COCKERELL also presented the Report of the Select Committee on the Bill to consolidate and amend the law relating to Pensions.

The following Select Committee was named :—

On the Bill to amend Act No. V of 1840 (concerning the Oaths and Declarations of Hindoos and Mahometans) :—His Honour the Lieutenant-Governor of the Panjáb, the Hon'ble Messrs. Strachey, Cockerell and Egerton and the Mover.

The Council adjourned to Tuesday, the 1st August 1871.

H. S. CUNNINGHAM,

Offg. Secy. to the Council of the Governor General for making Laws and Regulations.

SIMLA;
The 25th July 1871.

No. 30 of 1871.

SUPPLEMENT TO

The Gazette of India.

SIMLA, SATURDAY, AUGUST 12, 1871.

OFFICIAL PAPERS.

A SUPPLEMENT *to the* GAZETTE OF INDIA *will be published from time to time containing such Official Papers and information as the Government of India may deem to be of interest to the Public, and such as may usefully be made known.*

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GOVERNMENT OF INDIA.

LEGISLATIVE DEPARTMENT.

Abstract of the Proceedings of the Council of the Governor General of India, assembled for the purpose of making Laws and Regulations under the provisions of the Act of Parliament 24 & 25 Vic., Cap. 67.

The Council met at Simla on Tuesday, the 1st August 1871.

PRESENT:

His Excellency the Viceroy and Governor General of India, K. P., G. M. S. I., *presiding*.
His Honour the Lieutenant-Governor of the Panjáb.
His Excellency the Commander-in-Chief, G. C. B., G. C. S. I.
The Hon'ble John Strachey.
The Hon'ble Sir Richard Temple, K. C. S. I.
The Hon'ble J. Fitzjames Stephen, Q. C.
The Hon'ble B. H. Ellis.
Major-General the Hon'ble H. W. Norman, C. B.
His Highness Sarámade Rájáhée Hindústán Ráj Rájendra Srí Mahárájádhiráj Siváí Rám Sing Bahádur, of Jaypúr, G. C. S. I.
The Hon'ble F. R. Cockerell.
The Hon'ble R. E. Egerton.

CHAUKÍDÁRÍ ACT EXTENSION BILL.

THE Hon'ble MR. STRACHEY moved that the Report of the Select Committee on the Bill to authorise the extension of the Chaukídárí Act to places where there is no Jamadár of Police be taken into consideration. He said

that when the Bill was first introduced the only object had been to remove certain restrictions with reference to the places where the Chaukídárí Act might be put in force, which had been found inconvenient in practice. The other Local Governments concurred with that of the North-Western Provinces in the desirability of removing these restrictions. When the Bill was ready to be passed, the Government of the North-Western Provinces had represented that there were other points as to which the Bill was susceptible of improvement, and that these might advantageously be dealt with in the present measure. Some correspondence with the North-Western Provinces Government on the subject had ensued, and the Government of India had expressed the opinion that, so far as the further amendments of the law suggested by the North-Western Provinces Government involved no question of principle, and even of a kind that no other Government could object to, there would probably be no reluctance on the part of this Council to enact them in the Bill; but that, as regarded matters of more importance, it would be necessary to consult the Governments concerned before legislation could proceed farther, and that to do this would necessarily cause considerable delay. The Government of the North-Western Provinces had replied that the necessity for the measure was urgent, and agreed that it would be desirable to leave the larger topics untouched for the present, in order that the Bill might be passed forthwith. Accordingly, the amendments now introduced were so simple that it was unnecessary to detain the Council by any further remarks with reference to them.

The Motion was put and agreed to.

The Hon'ble MR. COCKERELL moved that after section 4 the following section be added :—

"5. In Appendix A, at the end of the first paragraph, the words 'and the aggregate amount assessed shall not exceed the average rate of two annas per mensem for each house, shop or building in the District,' shall be omitted.

"In Appendix C, the words 'the first payment on the tenth day of the month next succeeding the date of this notification, and every subsequent payment on or before the tenth day of each succeeding month,' shall be omitted."

He said that the appendices contained the forms of process to be issued under the Act (XX of 1856), and the proposed omissions were necessary to bring about a correspondence between the forms and the alterations, to be effected by this Bill, in the provisions of that Act to which they had reference.

The Motion was put and agreed to.

The Hon'ble MR. COCKERELL also moved that the following words be added to section 5 :—

"but shall not take effect within the territories subject to the Lieutenant-Governor of Bengal."

He remarked that as all the changes of the law contemplated by this Bill in effect merely gave greater latitude to the Executive and were simply of a permissive character, they would not, in fact, necessitate any variation of the existing procedure where such alteration was deemed inexpedient, and could hardly therefore, on general grounds, be open to objection on the part of the local authorities in any of the territories in which Act XX of 1856 was in operation. But as the last section of the proposed enactment provided for its incorporation with Act XX, the effect of applying this enactment to Bengal would, he (MR. COCKERELL) believed, be to restrict the power of the local Council to repeal or amend Act XX by its future legislation.

Now he (MR. COCKERELL) believed that, as a matter of fact, through the operation of two local Acts (III of 1864 and VI of 1868, B. C.), Act XX of 1856 had at the present time a very limited application in Bengal, and he

thought that it might very possibly be in contemplation in a future re-arrangement or consolidation of the Police law by the local Council, to repeal that Act entirely.

But even if no such consideration stood in the way of the extension of this Bill to Bengal, he would still hold that such extension was undesirable, inasmuch as the Bill related merely to matters of local detail, such as under a proper distribution of the legislative business of the country should be left to be dealt with exclusively by the local Legislature, wherever such a Legislature existed.

And that the present section 5 be read as section 6.

The Motion was put and agreed to.

The Hon'ble MR. COCKERELL then moved that the present section 5 be read as section 6.

The Motion was put and agreed to.

The Hon'ble MR. STRACHEY then moved that the Bill as amended be passed.

The Motion was put and agreed to.

LAND-REVENUE PROCEDURE (PANJÁB) BILL.

THE Hon'ble MR. STEPHEN moved for leave to introduce a Bill for consolidating and amending the law as to Land-Revenue Procedure in the Panjáb. He said that the present Bill formed a part of the scheme, which he had recently the honour of laying before the Council, for defining and consolidating the law of the Panjáb. He had had the advantage of consulting His Honour the Lieutenant-Governor and his hon'ble friend Mr. Egerton on the subject, and the opinion arrived at was that it would be more convenient to have two Bills: one to deal with the general law of the Province, and one to deal with land-revenue. The law as to this all-important subject had, from various causes, become extremely obscure and uncertain; and the wonder was, this obscurity and uncertainty had not entailed still more serious inconveniences than had been experienced. MR. STEPHEN might, however, refer to the discussions that took place in the Council some years ago, on the Panjáb Tenancy question, as an instance of the serious evils to which an indistinct, ambiguous and obscure law was calculated to give rise. A large portion of the difficulties in that long and troublesome controversy had arisen from the Settlement officials not clearly understanding the nature of the duties imposed on them by Regulation VII of 1822, and the other enactments which governed land-revenue procedure. There was hardly any subject of graver importance to the State, and there could be no doubt that it was desirable to free it, as far as possible, from all obscurity and confusion, and to give settlement officers the clearest and most unmistakable guide for their proceedings. There was no wish in any way to alter the law; all that was contemplated was to clear away doubts as to what was the law, and to put the existing law into a distinct and convenient form.

The Motion was put and agreed to.

CIVIL COURTS (OUDH) BILL.

THE Hon'ble MR. COCKERELL introduced the Bill to consolidate and amend the law relating to the Civil Courts in Oudh, and moved that it be referred to a Select Committee with instructions to report in six weeks. He said that this Bill was in the main a mere consolidation of the existing law with such alterations, either verbal or of arrangement, as were calculated to express the substance of that law in a more concise and intelligible form.

As regards the constitution of the Civil Courts and their original jurisdiction no change was proposed in the Bill as it now stood, but it might well be the case that, in the opinion of the local authorities, some amendment of the law in these respects, especially as that law was framed with no primary reference to the particular requirements of Oudh, was desirable. If such should be the general opinion, the projected legislation afforded a good opportunity for adopting any approved changes, and any proposals to that effect could be conveniently considered when the Bill was before a Select Committee.

So also in regard to the sections of the Bill relating to the appointment and removal of the presiding officers of the Courts, the oaths to be taken by them, the seals to be used, the places where the Courts were to be held, and the control of the appointment, and matters affecting the discipline, of the ministerial officers of the Courts. These provisions were taken from the Bengal Civil Courts' Act, and were for the most part identical with those of the former Bengal Regulations on the same subjects. As it had been the practice in Oudh to follow those Regulations in matters not expressly provided for by any law directly applied to that Province, the addition of provisions on such subjects, which were not treated of in the Central Provinces and Oudh Courts' Act of 1865, came obviously within the scope of a measure for the consolidation of the existing law.

The adaptation of these provisions to the circumstances of the Oudh Civil Courts in the manner contemplated by the Bill, was to a certain extent speculative, and they might very probably be found to need alteration in detail. They must be understood to be placed in the Bill tentatively, and to be subject to such modifications as might be advised by the local authorities.

The most important part of the Bill was that which dealt with the subject of the appellate jurisdiction of the Civil Courts.

The subject was one of some difficulty, owing to the absence of any settled principle in our previous legislation in reference to it.

In the Non-Regulation territories there were nearly as many differing forms of appellate procedure as there were divisions of such territories subject to a distinct local administration, and this, moreover, notwithstanding that the constitution and status of the Civil Courts up to, and inclusive of, the Court of the Commissioner, were almost precisely the same in each.

In British Burma, on whose Civil Courts the legislature first operated through Act I of 1863, a second appeal on the merits of a case was allowed from a decision on first appeal, when the judgment of the Lower Appellate Court differed from that of the Court of first instance, to the Commissioner, and his decision was absolutely final and not open to revision by any other Court on any question whatever.

In the Panjáb (Act VII of 1868) a second appeal under similar conditions lies to the Commissioner; but, as no finality was accorded to his decision thereon, a further special appeal against such decision might be brought under the Code of Civil Procedure.

In the Central Provinces, the Jhansi Division and Coorg, there was no second appeal on the merits of a case, but only the special appeal from an order passed in regular or first appeal on the terms of the Code of Civil Procedure.

In Oudh there was no absolute right of second appeal on the merits of any case, but the Appellate Courts exercise an extraordinary power of revision which practically operated as conferring the privilege of second, and even further appeal, to an almost unlimited extent.

This power originated in one of the provisos subject to which the Civil Procedure Code was extended to Oudh. That its supersession was intended by

the enactment of Act XIV of 1865, was evident from certain passages in the speech of Mr. Harington at the time of the passing of that Act. He said—

"With respect to the other suggestion, which proposed to continue a practice forming part of what was generally known as the patriarchal system, the Select Committee had observed as follows :—'We do not concur in the suggestion of the Judicial Commissioner that every Appellate Court should be empowered, within a year after any order shall have been passed by a Subordinate Court, to call up the case and revise the order. Where, as is the case in the present Bill, all proper facilities for appeal are allowed, we do not think it expedient to permit an Appellate Court to interfere except on appeal regularly preferred. In the absence of an appeal, it is only fair to presume that all parties are satisfied with the decision or are willing to submit to it, and it would be opposed to every principle of justice to allow any Court, of its own motion, to re-open the matter after an interval during which the decree has probably been executed and the whole litigation settled.'

"It was right he should mention that the Judicial Commissioner of Oudh, equally with the Judicial Commissioner of the Central Provinces, was anxious that the local Appellate Courts should retain the power which they now possessed of interfering with the decisions and orders of the Courts subordinate to them, although there should be no appeal, and although no objection should be taken by any one affected by the decision or order. The provision to this effect, which now formed part of the Code of Civil Procedure as in force in Oudh, was, he believed, introduced on the recommendation of Mr. Campbell, one of the learned Judges of the High Court at Calcutta; at the time he held the office of Judicial Commissioner of Oudh. Having lately had an opportunity of speaking to Mr. Campbell on the subject, he gathered from what fell from him, that he considered that the time had passed when the power in question could be exercised beneficially or for the interests of suitors, and that he was of opinion that the power should be withdrawn. In this opinion he (Mr. Harington) entirely concurred."

The proviso in question being a part of the then existing law should certainly have been repealed contemporaneously with the enactment of Act XIV of 1865. This was not done, and the result was that the power of revision had been considered to be in force and habitually exercised by the Appellate Courts in Oudh up to the present time.

Thus, in the six different territorial divisions of the Non-Regulation Provinces, there were no less than four distinct systems of appellate procedure based on entirely different principles.

The most commendable principle appeared to be that which gave a second appeal on the merits of a case from the conflicting decisions of the Courts of first instance and first appeal. The Bill consequently adopted the Panjáb procedure, but with this important modification, namely, that the second appeal should, in all cases, lie only to the highest Court of appeal in the Province.

If the right of second appeal on the facts was to be of any practical value, the appeal must lie to such a tribunal as would ensure the attainment of the best decision of the question in litigation as the circumstances of the Province would admit of. Even in the Regulation territories the main defect of our judicial system had always been held to be the weakness of the intermediate Courts of appeal; it being said that there was always a risk of the appeal from the decision of a well-instructed Court of first instance, which had had the advantage of hearing the evidence at first hand and marking the manner in which it was given, coming before a Court of at least no superior judicial capacity, and which had had no such advantage. If there were reasonable grounds for such an apprehension in regard to the intermediate Appellate Courts of the Regulation Provinces, where the Judges had no dual occupation, and, whatever may have been their antecedent deficiency of training for the bench, were set apart for exclusive employment in judicial business, they must exist in a greater degree in regard to the Court of the Commissioner in the Non-Regulation Provinces, whose attention was partially absorbed by his executive functions, and who might have been selected for the post which he filled with reference to his special aptitude for the discharge of such functions rather than for any particular judicial capacity.

For these reasons it was proposed that both the second appeal on the facts as well as the special appeal under the Civil Procedure Code should, in *all cases*, lie to the Judicial Commissioner, and that the latter be substituted for the abolished Financial Commissioner as the Court of final appeal in suits relating to land in Districts under settlement, the proviso under which the Appellate Courts obtained their extraordinary power of revision being expressly repealed.

A rather important consideration arose upon this proposition, namely, whether the Bill would not have the effect of throwing upon the Judicial Commissioner a greater amount of appellate business than he could reasonably be expected to dispose of compatibly with the due discharge of his other duties. The special appeals in suits relating to land being, under the policy of Government, exempted at present from liability to any Court fees, were already very numerous [indeed, he was informed that the present annual institution of appeals in Oudh averaged about two thousand, whilst the total number of such appeals which came yearly before the High Court of Calcutta, which had a working daily average of about three or four benches of Judges for their disposal, was scarcely above three thousand], and it was probable that the new procedure of the Bill would largely increase the present number.

This exemption from the payment of Court fees, and the excess in the number of appeals which it promoted, were doubtless but of temporary operation, and the period of such operation would soon expire as the settlements of land-revenue in Oudh were drawing to a close.

But, even if the excessive increase of business likely to devolve upon the highest Court of appeal through the operation of this Bill should not be of permanent duration, yet, on general grounds, it would seem expedient to devise some means of strengthening that Court partly by associating some other officer with the Judicial Commissioner for the trial of appeals, and partly by some provision for the reference of cases presenting questions of unusual difficulty to the High Court of the North-Western Provinces. In short, what appeared to be wanted was the restoration, in some form or other, of the substance of the procedure prescribed by the recently repealed Act XXXVII of 1867.

If this suggestion should commend itself to the local authorities, and he (MR. COCKERELL) had reason to believe that it accorded with the views of the present Chief Commissioner, there would be no difficulty in shaping the Bill so as to effect that object when it came before a Select Committee.

MR. COCKERELL had only to add that, in naming six weeks as the period within which this Bill, if committed, should be returnable to the Council, he had regard to the limited area within which the Bill was intended to operate, and the inconsiderable number of persons consequently to be consulted as to its provisions. But it should be clearly understood that there was no desire to hurry through the Council a measure involving such important considerations, and that the fullest opportunity would be afforded for eliciting the opinion of all persons most competent to advise on the subject of the proposed alterations of the law.

The Hon'ble MR. STEPHEN observed that the Council was at present in a particularly favorable position for legislating for Oudh, as it numbered among its Members two Ex-Commissioners of that Province. With reference to his hon'ble friend's remarks on the appellate system of India, the principle of such a system in his (Mr. STEPHEN'S) opinion was, that the existence of a right of appeal exercised a constant influence in keeping judicial officers up to the mark. This check was weakened rather than strengthened by multiplying appeals. An officer, disposed to be negligent, would, no doubt, be quickened in the performance of his duties by the consciousness that his judgment would be reviewed by his immediate superior; but the effect of this was lessened by the reflection that this reviewing authority would, in its

turn, be reviewed by a Superior Court, and that the case might ultimately find its way to the Privy Council, and not be disposed of for years. So, again, as to special appeals: they were, no doubt, a natural arrangement at the time when the law had to be administered by officers comparatively uninstructed in its details; but as matters now stood, they were a premium to lawyers to pick every possible hole in a judgment, and there was great doubt whether, on the whole, they conduced to substantial justice; on the other hand, there was no doubt that they conduced largely to delay, chicanery and waste of time. It would, in Mr. STEPHEN's opinion, be far better to let the Courts state points of law, wherever a reasonable doubt existed, than to put it in the power of the parties to raise any question they pleased, and so indefinitely prolong litigation.

MR. STEPHEN made these remarks not with the least intention of throwing doubt on the propriety of his hon'ble friend's proposals, but merely for the purpose of reminding the Council that the present system of appeals in the Courts of this country was open to serious objection, and would some day or other require to be reformed. He did not, however, think that this was any reason for opposing the present measure or for putting Oudh on a different footing from other parts of the Empire.

The Motion was put and agreed to.

The following Select Committee was named:—

On the Bill to consolidate and amend the law relating to the Civil Courts in Oudh:—His Honour the Lieutenant-Governor of Panjáb, the Hon'ble Messrs. Strachey, Stephen and Egerton and the Mover.

The Council adjourned to Tuesday, the 8th August 1871.

H. S. CUNNINGHAM,

Offg. Secy. to the Council of the Governor General for making Laws and Regulations.

SIMLA;
The 1st August 1871.

GOVERNMENT OF INDIA.

PUBLIC WORKS DEPARTMENT.

IRRIGATION OPERATIONS OF FUSL KHURREEF IN THE PUNJAB UP TO 31st MAY 1871.

Canal Division.	Water distributed during May 1871. Depth in Canal at regulating guage. Full supply.	Actual throughout May.	Gross consumption, cubic feet per second. Estimated full supply.	Actual average throughout May.	Navigation Return Canal. Principal items of Traffic. Up.	Down.	Land irrigated (approximate). Zillah.	Acres.	Rain-fall. Average.	During month.	Chief crops (approximate). Name.	Area in acres.	Remarks.
									Inches.	Miles.			
B. D. Canal. 1st Division ...	4·9	3·22	.....	1,151·57	...	.....	Goordaspoor ...	4,156	0·85	0·20			174·23 cubic feet per second passed out at the various escapes. The supply maintained equalled the demand. The canal was partially closed from the 7th to the 9th for urgent repairs to rapid No. 10.
2nd „ M. B., Lower ...	4·6	2·33	.....	526·29	...	.....	Umritsur ...	4,495	0·62	1·14			
„ „ Lahore Branch ...	3·3	2·50	3,073·6	409·04	...	.....	Lahore ...	12,142	...	...	Cotton ...	9,473	
											Rice ...	618	
											Sugarcane...	5,118	
											Others ...	5,584	
Total Baree Doab Canal ...	.....	.....	3,073·6	2,086·90	*Nil.*	*Nil.*	.....	20,793	...	...	.....	20,793	The small increase in area irrigated does not require remark.
Corresponding period of last year	.....	.....	3,073·6	1,387·96	*Nil.*	*Nil.*	.....	16,698	...	...	.....	16,698	
Western Jumna Canal. Kurnaul Division ...	4·33	3·85	.....	171·30	...	123,530 logs, kurrees, bullies, &c.	Umballa ...	...	1·5	0·98			471 cubic feet per second passed down the Boodha Khera escape. Rain fell throughout the districts watered by the Western Jumna Canal, and the absence of the usual hot winds was specially noted.
Delhi „	4·4	4·01	.....	750·32	...		Kurnaul ...	9,828	0·4	1·50			
Hansi „	8·8	8·6	.....	929·61	...		Delhi ...	20,290	...	...			
„ Bulla Head ...	8·4	7·4	2,546·0	103·16	...		Rohtuck ...	22,307	...	...	Cotton ...	41,210	
							Hissar ...	11,294	...	...	Rice ...	313	
							Jheend ...	6,530	...	...	Sugarcane...	25,413	
							Bikaneer ...	139	...	...	Others ...	3,452	
Total Western Jumna Canal ...	.....	.....	2,546·0	1,954·39	...	123,530	.....	70,388	...	...	.....	70,388	
Corresponding period of last year	.....	.....	2,546·0	2,143·76	...	99,688	.....	70,958	...	...	.....	70,958	
Inundation Canals. Upper Sutlej Division ...	.....	.....	.....	.....	...	.....	Lahore ...	500	...	...	Detail not obtainable for want of Establishment.	.....	* The returns for May have not been received up to date from the Executive Engineer of the Lower Sutlej and Chenab Division.
Lower Sutlej and Chenab	.....	.....	.....	.....	...	.....	Montgomery ...	6,000	...	...		.....	
Indus Canals	.....	.....	.....	.....	...	.....	Mooltan ...	*	...	...		.....	
							Dehra Ghazee Khan	32,754	...	...		.....	
Total Inundation Canals ...	.....	.....	.....	.....	...	.....	.....	39,254	...	...	.....	39,254	In the figures shown under grand total comparison with last year is made for Prennial Canals only, for want of the information necessary from the Inundation Canal Divisions.
Delhi and Goorgaon Works	.....	.....	.....	.....	...	.....	.....	.....	...	...	.....	.....	
Total Delhi and Goorgaon Works	.....	.....	.....	.....	...	.....	.....	.....	...	...	.....	.....	
Grand Total ...	.....	.....	.....	.....	...	.....	.....	91,181	...	...	.....	91,181	
Corresponding period last year ...	.....	.....	.....	.....	...	.....	.....	87,656	...	...	.....	87,656	

IRRIGATION OPERATIONS OF LOWER BENGAL UP TO 31st MAY 1871.

Circle.	Canal.	Water supplied during: Full supply depth.	Water supplied during: Estimated full discharge in cubic feet per second.	Water supplied during: Average depth throughout the month.	Water supplied during: Average discharge in cubic feet per second throughout the month.	Approximate area irrigated during: District.	Approximate area irrigated during: Area actually receiving water during month, in acres.	Approximate area irrigated during: Of column 8 area receiving water for first time during current year.	Total of columns 8 and 9 for all previous months of current year.	Total area irrigated up to date during the current year.	Rain-fall: Inches during the month.	Rain-fall: Inches up to date during the year.	Rain-fall: Average of ten previous years for the same period.	Navigation Return: Nature of Traffic.	Navigation Return: Number of Boats.	Navigation Return: Tonnage.	Navigation Return: Ton mileage.	Navigation Return: Approximate value of goods.	Chief Irrigation: Per column 8.	Chief Irrigation: For columns 8 & 9.	Remarks.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Orissa	High Level	..	No	information.		Cuttack	..	..	..	..	4·20	9·97	4·82	....	No	infor	mation.	..	..	..	
	Kendrapara	7	1,262	4·61	640·8	Ditto	..	..	..	..	4·20	9·97	4·82	Local Through	182 410	900 3,216	17,741 14,313	36,317 134,019	..	..	The heavy rain-fall prevented any demand for artificial irrigation.
	Taldunda	8	1,300	7·25	125	Ditto	..	..	..	..	4·20	9·97	4·82	Local Govt.	20 80	866 1, 0	1,008 19,866	145 1,421	..	..	
South-Western Circle.	Midnapoor	8	875	..	..	Midnapore	166	166	..	166	9·90	13·90	9·67	Govt.	14	172	10·26	299	Rice ploughing.	..	
	Pancheoora	6	240	..	..	Howrah	..	...	..	..	9·00	14·05	Not available.	Local	80	271	22·40	7,719	..	..	Range No. III. closed for repairs. Range No. I. closed for repairs during the month.
	Tidal	..	..	..	..	....	..	..	..	..	..	..	..	Govt. Local	59 887	400 7,588	10,418 197,288	3,050 128,206	..	..	Navigation Canal.
	IRRIGATION. *May* 1870.																				
Orissa	High Level	..	..	..	..	Cuttack	47	32	15	47	..	..	..	....	..	..	..	..	Cotton 15	Rice 32	
	Kendrapara	..	..	..	..	Ditto	2,151	1,220	931	2,151	..	..	..	....	..	..	..	..	Rice 32 Cotton 1,850 Rice 224	Cotton 1,069 Rice 141	Canal closed from 10th.
	Taldunda	..	..	..	..	Ditto	..	..	..	..	..	..	..	....	..	..	..	..	..	..	
South-Western Circle.	Midnapoor	..	..	..	..	Midnapoor	25	..	35	..	..	..	..	....	..	..	..	..	Rice 25	..	
	Pancheoora	..	..	..	..	Howrah	..	..	..	35	..	..	..	....	..	..	..	..	..	..	

T. M. KIRKWOOD, C. S.,
Canal Revenue Supdt., Bengal.

The 6th July 1871.

GOVERNMENT OF INDIA.

FINANCIAL DEPARTMENT.

DECIMAL SUB-DIVISION OF THE RUPEE.

Note by Lieutenant-General His Excellency the Hon'ble SIR W. R. MANSFIELD, K. C. B., K. C. S. I., *dated 7th March* 1870.

I TAKE the liberty of circulating some official papers on the Currency of Ceylon which were lately forwarded to me by His Excellency Sir Hercules Robinson, the Governor of that Island.

The second set of papers refers to a project for the decimalization of the subsidiary inferior coinage of the rupee, according to which the rupee being divided in 100 cents :—8 annas = 50 cents, 4 annas = 25, 2 annas = 12½, 1 anna = 6½, cents.

It is proposed that the two first should remain in circulation, *viz.*, the 8 anna and 4 anna piece, and that for the inferior sums, these should :—

Silver	...	...	1	...	...	10th rupee.
Copper	...	...	1	...	...	20th ,,
			1	...	...	50th ,,
			1	...	...	100th ,,
			1	...	...	200th ,,

For the argument and the scheme, I refer to Mr. Molesworth's paper which has been very carefully worked out.

With regard to the simplification of account-keeping and the petty calculations which occur daily in every shop and bazaar, and further to the expediency of having metallic coins which may take the place of cowries, &c., &c., it appears to me that the scheme is worthy the best consideration of the Financial Department.

The objection which meets us at once is that the anna is the basis of our stamp-duties. The difficulty does not appear to be insurmountable, if some "give and take" arrangement be adopted in the lowest priced stamps, such as that suggested for Ceylon.

No. 1133, dated Colombo, 2nd September 1869.

From the DIRECTOR OF PUBLIC WORKS, to the HON'BLE THE COLONIAL SECRETARY.

[DECIMAL COINAGE.]

SIR,—In compliance with the wishes of His Excellency the Governor, I have the honor to submit in a connected form the views which I discussed with him in the year 1866 respecting the introduction of a subsidiary decimal coinage of the Rupee.

The value of the decimal system is too well known and appreciated to render it necessary for me to enter minutely into its advantages; it may, however, be as well to combat an abstract and somewhat unpractical objection which is sometimes urged against it on the ground of the number 10 not being readily divisible without remainder by certain numbers—an objection not only to decimals but to the whole system of arithmetic now in use, and which, were it a forcible one, could only be met by entirely upsetting the present system, and adopting one based on the powers of 8 or 12; the former basis rendering it necessary to eliminate the figures 8 and 9 from our arithmetic, the latter rendering the creation of two additional figures necessary. Professor Airy (the Astronomer Royal) has,

however, after a careful consideration of this question, expressed his opinion that the adoption of a multiple capable of easy division practically gives no advantage, though at first sight it may appear to do so, and he strongly recommends the decimal system as the best; and Mr. Babbage, before he commenced the construction of his calculating machine, found it necessary to enter into an examination to ascertain whether it would be possible to simplify the mechanism, or accelerate its effects by the use of an arithmetic arranged on other powers than 10; but after a patient investigation of the various bases, particularly those of 8, 12, and 16, he arrived at the conclusion that a system of arithmetic having the number 10 as its basis was, on the whole, the best; and the efforts now made by nearly all civilized nations to introduce decimal coins, weights, and measures, afford the best proof of the value of the system.

Those, however, who have not been in the habit of using decimals can scarcely appreciate the advantages they afford when compared with annas and pie. The pie is the $\frac{1}{192}$nd part of a rupee, a very awkward fraction, and the following Table shows that the decimal equivalents of annas and pie are scarcely less cumbrous :

Table of the value of annas and pie in cents. or $\frac{1}{100}$ths of a Rupee from 1 *pie to* 15 *annas* 11 *pie.*

	P 0	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	
Annas.													Annas.
0	0	·521	1·041	1·562	2·083	2·604	3·125	3·646	4·166	4·687	5·208	5·729	0
1	6·25	6·771	7·292	7·813	8·333	8·854	9·374	9·895	10·416	10·937	11·458	11·979	1
2	12·5	13·02	13·541	14·062	14·583	15·104	15·625	16·146	16·666	17·187	17·707	18·228	2
3	18·75	19·27	19·791	20·312	20·832	21·353	21·874	22·395	22·916	23·437	23·958	24·479	3
4	25·	25·521	26·041	26·562	27·083	27·604	28·125	28·646	29·166	29·687	30·208	30·729	4
5	31·25	31·771	32·292	32·813	33·333	33·854	34·374	34·895	35·416	35·937	36·458	36·979	5
6	37·5	38·02	38·541	39·062	39·583	40·104	40·625	41·146	41·666	42·187	42·707	43·228	6
7	43·75	44·27	44·791	45·312	45·833	46·353	46·875	47·395	47·916	48·437	48·958	49·479	7
8	50·	50·521	51·041	51·562	52·083	52·604	53·125	53·646	54·166	54·687	55·208	55·729	8
9	56·25	56·771	57·292	57·813	58·333	58·854	59·374	59·895	60·416	60·937	61·458	61·979	9
10	62·5	63·02	63·541	64·062	64·583	65·104	65·525	66·146	66·666	67·187	67·707	68·228	10
11	68·75	69·27	69·791	70·312	70·832	71·353	71·874	72·395	72·916	73·437	73·958	74·479	11
12	75·	75·521	76·041	76·562	77·083	77·604	78·125	78·646	79·166	79·687	80·208	80·729	12
13	81·25	81·771	82·292	82·813	83·333	83·854	84·374	84·895	85·416	85·937	86·458	86·979	13
14	87·5	88·02	88·541	89·062	89·583	90·104	90·625	91·146	91·666	92·187	92·707	93·228	14
15	93·75	94·27	94·791	95·312	95·833	96·353	96·875	97·395	97·916	98·437	98·958	99·479	15
	0 P	1 P	2 P	3 P	4 P	5 P	6 P	7 P	8 P	9 P	10 P	11 P	

The following example will serve to illustrate the difference between the two systems :

EXAMPLE 1.

Required the cost of 7 *yards of cloth at* 7 *rupees* 6 *annas and* 5 *pie per yard.*

BY ANNAS AND PIE.	BY DECIMALS.
7 Rs.	R. Cts.
7	7·40
49 Rs.	7
2 10 0	51·80
2 11	
51 12 11	

6 annas
7
16)42(2 Rs.
32
10 annas

5 pie
7
12/35
2 11

In this example 8 figures and simple multiplication alone are required by the *decimal* system, whilst 36 figures and division as well as multiplication are entailed by the system of *annas and pie.*

EXAMPLE 2.

Required the cost of 56 *superficial feet of Zinc, at* 13 *annas* 11 *pie per foot.*

BY ANNAS AND PIE.

```
                    11 Pie
13 annas            56
56                  ---
---                 66
78                  55
65                  -----
---               12/616
16)728(45 Rs.       ---
64                16)51 + 4 (3 Rs.
---                 48
88                  ---
80                   3 annas
---               ...     ...
 8 annas
```

	Rs.	A.	P.
...	3	3	4
...	45	8	0
	48	11	4

BY DECIMALS.

```
 87 Cents.
 56
 ---
 522
435
-----
48·72
-----
```

In practically converting annas and pie, all the figures might not be set down in the manner of the foregoing examples, but the comparative amount of arithmetic is in each case fairly represented; such cases are of constant occurrence in all business transactions, and though ready reckoners are used to diminish the labour, it is far better to adopt a system requiring no such appliances.

The coins at present in use in Ceylon are as follows:

	Decimal of Rupee.	Value, assuming the Rupee = 24 pence.	Fraction of Rupee.
Rupee	1·	24*d.*	1
½ Rupee	·5	12	½
¼ "	·25	6	¼
4 penny piece	·166	4	1-6
2 anna piece	·125	3	1-8
One penny	·0416	1	1-24
Two Stiver piece	·0312	¾	1-32
Half-penny	·0208	½	1-48
One Stiver	·0156	⅜	1-64
Farthing	·0104	¼	1-96
Challie or pie	·0052	⅛	1-192

I would propose that the rupee, ½ rupee, and ¼ rupee should remain in circulation, and that the rupee should be divided into 100 parts, which I may term "cents" for convenience. The coinage for Ceylon would then stand as follows:

PROPOSED NEW CURRENCY.

		Fraction of Rupee.	Cents.	Equivalent value at 24 pence to a Rupee.
EXISTING COINS ...	Silver ...	Rupee ...	100	24
	" ...	½ rupee ...	50	12
	" ...	¼ " ...	25	6
NEW COINS ...	Silver ...	1-10 rupee ..	10	2·4 or 2½*d.* nearly.
	Copper ...	1-20 rupee ..	5	1·2 or 1¼*d.* "
	" ...	1-100 rupee	1	·24 or ¼ "
	" ...	1-200 rupee	½	·12 or 1 challie nearly.

The foregoing table is calculated on the assumption that 24 pence equal the rupee, because the practice in this Colony renders it necessary to make the comparison between the proposed and the present coinage on this basis.

The lowest coin might be half a cent, and accounts might then be kept in two columns only, *viz.*, rupees and cents. Should it be considered necessary to carry out the decimal system to its full extent, this coin might be called a five mil piece; but it is scarcely desirable, for practically the five mil piece would never be used in accounts, and anything smaller than five mils or about half a farthing would be too small for coinage.

It may be desirable to convey an idea of the value of the $\frac{1}{100}$ part of a rupee to the Native mind more easily, by using the term siya (hundred) instead of cents, and the Singhalese character for this term could be impressed on the coins.

The two-anna piece might, or might not, remain in circulation as 12½ cents, but I think it would be more convenient to discourage its use, as the 10-cent piece would be a far more convenient coin, and some confusion would exist in the use of two coins so nearly of the same size and value. On the other hand, this might be obviated to some extent, by milling the edge of the 10-cent piece to distinguish it more readily, as the three-penny and four-penny pieces were distinguished in England.

The introduction of the new coinage would naturally be attended with considerable difficulties; it becomes, therefore, necessary to consider the character of such difficulties, and the best method of meeting them.

The principal of these difficulties are—

I.—The adjustment of stamps and tolls.

II.—The circulation of coins of the two systems at the same time, and the adjustment of small rates.

The first of these difficulties alone require serious consideration. The penny stamps being 4·166 cents, it is clear that the stamp by the altered coinage must be made either four or five cents in value. If it be made five cents, private individuals will have to pay 20 per cent. more for their penny stamps, whilst if it made four cents, there will be a loss to the revenue of about four per cent. on stamps of the value. This difficulty may, however, be easily overcome by an adjustment based on the present issue of stamps, which would give the advantage to the private individuals in some instances, and to the Government in others; the total result remaining nearly the same as at present, without inflicting an injustice on the individuals or entailing a loss in revenue.

The following adjustment, based on the stamp issues of 1868, will serve to illustrate my meaning. I would recommend that the penny postage stamps should be made four cents, the half-penny postage stamps two cents, whilst the present penny receipt or draft stamp should be made five cents.

A new stamp ordinance will be necessary to carry into effect this alteration.

The adjustment on the proposed rates only give a loss of £43 on the total value of stamps issued in 1868, which amounts to about £108,000.

Table showing the proposed adjustments of rates for stamps on the decimal system.

Character of Stamp.	Number issued in 1868.	Value at present rates.		Value at proposed rates.	
		Rate.	Amount.	Rate.	Amount.
		Pence.	Rupees.	Cents.	Rupees.
Postage ...	265,303	½	5,527	2	5,306
Ditto ...	1,224,938	1	51,039	4	48,997
Ditto ...	68,694	2	5,724	8	5,495
Ditto ...	56,963	3	7,120	12	6,835
Ditto ...	18,699	4	3,116	16	2,992
Ditto ...	32,017	5	6,670	20	6,403
Ditto ...	8,175	8	2,725	30	2,452
Ditto ...	10,880	9	4,080	35	3,808
Ditto ...	21,624	10	9,010	40	8,649
Ditto ...	103	21	90	85	87
Receipt, draft, or judicial ...	385,688	1	16,070	5	19,284
Ditto ...	58,368	2	4,864	10	5,837
Ditto ...	18,340	3	2,292	14	2,567
Ditto ...	27,156	4	4,526	18	4,888
Ditto ...	3,657	8	1,219	30	1,097
Ditto ...	39,958	9	14,984	35	13,985
Ditto ...	2,295*	3	287	14	321
Ditto ...	5,235*	4	872	18	942
Ditto ...	4,438*	8	1,479	30	1,331
Ditto ...	519*	9	194	35	181
TOTAL ...	2,253,050	.....	141,888	.....	141,457

The stamps marked* represent those above the value of a shilling, such as 1*s.* 3*d.*, 3*s.* 4*d.*, &c., but the fractional portion alone has been dealt with, because the value of the shilling may remain unaltered as 50 cents, and needs no adjustment.

The total number of stamps issued during the year 1868 was 3,112,184, but this includes a large number of six penny, shilling, and other stamps of higher value, which, as they will remain unaltered in value, I have omitted in dealing with the question of adjustment.

The stock of stamps in hand, with the exception of those which would bear a higher value, might remain in circulation at their adjusted value even after the introduction of the decimal system, for instance, the ½*d.* and 1*d.* postage might pass current for two and four cents, respectively; and inconvenience to the existing holders of such stamps might be obviated by a proclamation, that, after a specified date, certain stamps would pass current for specified values in cents,—a period after that date being allowed to enable holders to return their stamps and receive an equivalent in other stamps. But to prevent fraud, no stamps of that class should be issued from the treasury during that period, or, if issued, that they should be so marked as to prevent their being exchanged for an equivalent to their nominal value.

It would be necessary that the 1*d.* draft, receipt, and other stamps, the value of which would be raised by the adjustment, should cease to be current; but a period should be allowed during which the holders of such stamps might be allowed to exchange them for other stamps equivalent to their original value.

The tolls would be but little affected by the new system, as all the more important toll rates might remain unchanged; but as a new ordinance to fix the rates would in any case be required, new rates on the "give and take" principle might be adopted.

The following rates might require alteration :

Nature of Toll Rates.	Present rates.		Proposed rates.
	In pence.	In cents.	In cents.
Loaded canoe	16	66⅔	70
Passenger vehicle, 2 wheels	15	62½	60
Cart drawn by one animal			
Unloaded canoe			
Unloaded elephant cart	9	37½	40
Loaded elephant			
Unloaded dhoney	8	33⅓	30
Unloaded cart	4½	18¾	20
Unloaded canoe	4	16⅔	16
Additional horse			
Loaded ox			
Additional bullock	3	12½	10
Unloaded one horse cart			
Additional canoe			
Leaguer or cask	2	8⅓	10
Additional ox to passenger cart			
Unloaded ox	1½	6¼	6
Additional animal to cart			
Foot passengers at ferries	½	2·08	2·00
Pigs, goats, &c.	¼	1·04	1

The difficulties inseparable from the transition to the new coinage would, I believe, in practice, be less than might be imagined at first sight. I speak from personal experience on this subject, having resided in Portugal for a short time immediately after the introduction of the decimal system of mil-reis coinage in that country; and though the transition was far more complicated than that which I propose (the Crusado and Testoon, with their subsidiary coins, being in full circulation), I was astonished to find how soon the people became accustomed to it, how little inconvenience was caused by the change, and how much the decimal system was appreciated.

The difficulties might, I think, be much mitigated by issuing beforehand a proclamation, that, after a specified date, the existing copper coinage would not be lawful money; and the calling in of the coin might be facilitated by the offer of a small premium on all sums in copper exceeding, say, Rupees 40 paid into the treasury, the cost of such premium might be recovered from the profits on the issue of the new copper coinage.

With contract, based on states of the existing coinage, I believe there would be no difficulty; such contracts will be few, and they would in all probability expire before the new system could be brought into operation; but, if not, the calculations might be made on the rates of the old coinage, and the gross accounts so calculated would not be affected to any appreciable extent.

The prices paid for different retailed articles would very soon adjust themselves without any special provision.

I have, &c.,

GUILFORD L. MOLESWORTH.

The Standard Commissioners' Report of 1841 contains the following statement: "The "first point, which has called for our special notice, is the general question of decimal "scale. In introducing this subject, we beg leave to invite the attention of the Govern- "ment to the advantage and facility of establishing in this country a decimal system "of coinage. In our opinion no single change, which it is in the power of a Government "to effect in our monetary system, would be felt by all classes as equally beneficial with "this, when the temporary inconveniences attending the change had passed away."

Commissioners appointed in 1843 stated that "they felt it their duty to represent "that they were strongly impressed with the advantages of a decimal system of coinage."

The Standard Commission, recommended in August 1869 "That the decimalization "of the (British) system of coinage, should be undertaken by Government."

Mr. S. S. Lloyd, Chairman of the Association of Chambers of Commerce, states in evidence before the Royal Commission on International Coinage, July 1868: "I think "the recognition of the advantages of the decimal system of accounts is growing very "much amongst the commercial community:" and before the same Commission, E. K. Mespratt, Esq., Member of the Council of the Liverpool Chamber of Commerce, in reply to the question, "does the quotation of the prices of cotton by eighths of a penny militate against the expression of a desire for a decimal division?" says: "Considering "that Liverpool has very prominently come forward in favor of decimalization, it would "not seem as if the decimalization created any difficulty in the way of the quotation of "the cotton—and considering that they have in America a decimal system as regards "their money, and that they got over the difficulty of expressing the eighth in a very simple "manner, I do not see that it is any real difficulty. I think it is only a fancied difficulty "put forward by men who are in favor of the duodecimal system. I do not think there "is any practical difficulty about it."

"Liverpool merchants have, I think, been more prominently than any others in "favour of the decimalization. I suppose, you know, that they altered the scale of corn "to the cental, the 100lbs., in order to facilitate transactions."

Proceeding of Meeting of the Association for the Introduction of the Decimal System into Ceylon, 1st December 1869.

MEMBERS PRESENT:

The Hon'ble the Queen's Advocate, Hon'ble T. B. Stephen, G. D. B. Harrison, Esq., M. L. C., H. W. Gillman, Esq., C. C. S., C. A. Lorenz, Esq., G. L. Molesworth, Esq., H. Dias, Esq., C. L. Ferdinands, Esq., Lieutenant C. Woodward.

The meeting then proceeded to the election of a Chairman and Secretary.

It was proposed by Mr. Molesworth, and seconded by Mr. Lorenz that Mr. Harrison be elected Chairman. *Carried unanimously.*

Proposed by the Hon'ble R. F. Morgan, Q. A., seconded by Mr. Dias that Lieutenant Woodward be elected Secretary. *Carried unanimously.*

The following gentlemen were added to the list of Members:

A. Wise, M. L. C., D. Wilson, M. L. C., A. M. Ferguson, T. Steele, and J. A. Martensz.

The following members proposed by Mr. Lorenz were elected:

James Van Langenbery, Kandy, J. H. Tennekoon, Kurunegala, Solomon, John Pulle, Jaffna Edremanisinger, Durasamy, Colombo, E. H. Dehigama, M. L. C.

The Chairman then called on the Secretary to read the report.

Proposed by the Hon'ble T. B. Stephen.
Seconded by Mr. Lorenz.

That this report be adopted. *Carried unanimously.*

Proposed by Mr. Dias.
Seconded by Mr. Gillman.

That a deputation should wait on His Excellency the Governor to present a copy of this report, and such of the petitions as shall have been received up to date with an abstract of the signatures.

The Secretary was directed to communicate with the Private Secretary to learn from His Excellency what day next week would be convenient for him to receive the deputation after Wednesday.

The meeting was adjourned till this day week at 3-30 P. M.

C. WOODWARD, *Lt., R. E.*

First Report of the Association for the Introduction of a Decimal System into Ceylon.

THE Association sees much reason for congratulation in the present aspect of the decimal question in Ceylon.

The past efforts of the Association have met with the most unequivocal success. The paper drawn up and published by the Association for the purpose of explaining to the masses the proposed decimal currency and its advantages, has been widely circulated, and has produced a strong and universal feeling throughout the country in favor of the decimal sub-division of the rupee.

The planting community, already prepared for decimals by their use in working out estate expenditure,* at once appreciated its advantages and signed the memorials very numerously.

The Native traders whose natural aptitude for computation has enabled them readily to grasp and appreciate the explanation given by the Association, have come forward most readily in support of the decimal currency.

Numerous petitions are daily pouring in from all parts of Ceylon, and the signatures attached to them show that the feeling in favor of the decimal system is shared by all classes alike.

In Jaffna, where Indian proclivities and proximity to India might be supposed to prejudice them in favor of the anna and pie, the inhabitants have come forward even more readily then elsewhere in support of the movement for decimals.

The missionaries and others engaged in education, seeing the advantages such a system must give them in their labors, are also active supporters of the movement.

The public journals are now unanimous in the advocacy of the decimal system, and a few extracts from the different journals are annexed to this report.

The Association has further cause for congratulation in the accession to their strength of several members of the Executive and Legislative Councils and other gentlemen of high position and standing in Ceylon.

The Association has carefully avoided entering upon the question of whether any change from the present system is necessary. Amongst their members are some who hold that no change is required—others consider that a change is desirable—but all are unanimous in favor of a decimal currency, should the present system be abolished.

APPENDIX No. 1.

Memorial to His Excellency SIR HERCULES ROBINSON, K. C. M. G., *Governor and Commander-in-Chief of the Island of Ceylon and its Dependencies, &c., &c. &c.*

MAY IT PLEASE YOUR EXCELLENCY,—We the undersigned having heard that the present currency of £. *s. d.* is to be abolished, and that rupees substituted for it, most earnestly request that if such a change be necessary, the subsidiary divisions may be decimals of the rupee, and *not annas and pie.*

We have every reason to believe that the term "decimal" is not generally understood in Ceylon, and that many erroneously fancy a decimal coinage must involve some great and difficult change, and that it will be necessary for those who do not understand decimal arithmetic to learn it before they can comprehend and use a deimal coinage.

This fear is entirely without foundation. The change is very slight and simple; it is unnecessary to acquire a knowledge of decimal arithmetic to use it, and a child might be made to understand it in a few minutes.

We are convinced that if this were rightly understood, the inhabitants of Ceylon would be unanimous in their demand for it.

The decimal coinage, as we understand it, simply consists in dividing the rupee into 100 (instead of 96 farthings as at present) and calling these "cents" or any other convenient denomination.

It will be unnecessary to put a single coin out of circulation; all the silver coins will circulate at their present value, and the *copper coins only* at a very slightly altered value.

The rupee will consist of 10 cents or "siyas" (the Singhalese name for 100ths.)

The shilling consists of		50	cents.	These will circulate unaltered in value.
„ six-pence	„	25	„	
„ Three-pence	„	12½	„	
„ Penny	„	4	„	These may circulate altered in value only to the almost unappreciable extent of 4 per cent.
„ Half-penny	„	2	„	
„ Farthing	„	1	„	
„ Challie	„	½	„	

We do not think that it will be *absolutely necessary* to create any new coins; but to prevent any possible injustice or objection, two (or possibly three) new copper pieces might be coined, and made exchangeable at all the Government cutcheries for an equivalent value (*viz.*, at the rate of 25 cents for 24 farthings).

Thus, it will be seen that the change is trifling, and the only difficulty would be a slight effort of memory to remember that the farthing equals one cent, the penny 4, and the shilling 50, &c., which might be mastered by any one in a few minutes.

The adoption of decimals will be followed by advantages too numerous to be mentioned. For example it will effect—

1*st.*—An immense saving of labor, trouble, and risk of error in all accounts.

2*nd.*—Persons possessing a limited knowledge of arithmetic will far more easily make a *practical* use of that knowledge.

* See Mr. George Wall's paper on estate expenditure, July 1866, in which the calculations are made out in decimals.

3rd.—The education of the lower classes will be much assisted thereby.*

4th.—Simple multiplication and division will take the place of the intricate compound multiplication and division required by annas and pie.

5th.—It will help persons unacquainted with arithmetic, in that mental computation (so common amongst small dealers in Ceylon) which is made without figures but by the aid of the fingers, and by dividing articles to be sold in small heaps of 10.

6th.—It will fall in with, and materially aid, the practice of selling by the hundred, so universally used in small transactions such as the sale of plantains, nuts, fish, and other articles innumerable.

Two examples will show the immense advantages of the decimal system in division and multiplication.

Ex. I.—*Multiply* 14 *annas* 7 *Pie* (=†91 *cents*) *by* 365.

By Annas and Pie.				By Decimals.
14 Annas	7 Pie.			Cents.
365	365			91
				365
70	12)2555			
84				4·55
42	16)212	„ 11 pie (13) Rs.		54·6
	16			273
16)5110 (319 Rs.				
84	52			Rs. 332·15 Cts.
	48			
31				
16	4 Annas.			
	Rs.	Annas.	Pie.	
150	319	6	0	
144	13	4	11	
6 Ans.	332	10	11	

Ex. II.—*Divide* 759 *Rupees by* 425.

By Annas. and Pie.	By Decimals.
425) 759 (1 Re.	Rs. Cents.
425	425) 759 (1·78
	425
334	
16	3340
	2975
2004	
334	3650
	3400
425) 5344 (12 annas.	
425	250
1094	
850	
244	
12	
425) 2928 (6 pie.	
2550	
378	

* Professor de Morgan states that 1-20th of the time spent in primary education, and 1-4th of the time spent in learning arithmetic, is thrown away by the non-adoption of a decimal system.

† 91 cents does not exactly equal 14 annas and 7 pie, but the nearest decimal division has been taken as an example to show the difference of the two systems.

All civilized nations are endeavouring to adopt a decimal system, but none, we believe, possess such facilities as those afforded by the present state of the currency of Ceylon; while no opportunity can occur for its introduction more favourable than the present.

We beg therefore that your Excellency may be pleased to grant it in preference to the objectionable and inconvenient system of annas and pie.

Appendix II.

Extract from a translation of an article which appeared in the "Lakrivikirana" of 5th November 1869.*

According to the suggested change there will be 96 farthings in a rupee.

The petitioners request that it (the rupee) may be divided into 100 parts, and that cent, or "siya," or any other appropriate name may be given to them. Then

In 1	shilling there will be		50	cents or siyas.	
6*d*	„	„	25	„	„
3*d*	„	„	12½	„	„
1	„	„	4	„	„
¼	„	„	1	„	„
⅛	„	„	½	„	„

That 4 cents, 1 cent, and ½ cent, require no new coins, because the difference is very trifling.

When it is kept in mind that one penny is equal to 4 cents or siyas, farthing is equal to one cent, 1 copper challie equal to ½ cent, even a child would be able to understand this (method).

The advantages attainable by this are numerous. The following are some of them:

1. Difficulties and errors in accounts will be avoided.

2. It would be easy for persons dealing in small articles of sale who are only up to finger counting and do not understand arithmetic, to effect their sales by dividing their goods by portions of tens.

3. It will be very convenient and agreeable for the sales carried on by hundreds, *viz.*—

If 100 cocoanuts are sold for Rs. 4, one cocoanut's value is 4 cents, 10 cocoanuts 40 cents; similarly, if 100 plantains are sold for Re. 1, 8 plaintains' value is 8 cents, 15 plaintains, 15 cents, &c.

In most of the countries in Europe such a method as this is adopted.

In consequence of the conveniences attained by this system of accounts they are trying to introduce such a system in other civilized countries also.

("*Ceylon Observer*," *November* 13, 1869.)

We are now very hopeful that with the beginning of 1870 Ceylon will rank amongst the countries using a decimal currency, to be

* The *Lakrivikirana* is a Native Journal printed in the Vernacular.

followed at no distant date by the same principle applied to weights and measures. A well-known planting correspondent writes: "I fancy no one now anticipates the possibility of the old denomination of currency being retained. There is a very *general strong* feeling in favor of a *decimal* currency. Almost every one with whom I have discussed the subject, whether favorable or not to a change, prefers the decimal system to the Indian of annas and pie or pice. Memorials now going round for signature will prove by the multitude of names attached how universal this feeling is. West Matale seems united like one man, in favour of a decimal currency. Still it is a curious practical commentary on all this arguing and discussion, the fact that the other day I got a sovereign at the bank for ten rupees! However, you and I both remember the time when we would have had to pay eleven and a half rupees."

("*Ceylon Times*," 16*th November* 1869.)

As regards the currency, general opinion is decidedly in favour of a decimal monetary system as compared with the cumbrous rupees, annas, and pies of India, and memorials to this effect have been freely circulated and as freely signed.

If, therefore, the Secretary of State should not yield to the representation made in favour of retaining the existing system of £ *s. d.*, and there should be any real disposition on the part of Government to sanction such a change as the adoption of decimal coinage, the present expression of popular feeling backed up by an unanimous press will enable the Governor to carry it out.

("*Examiner*," 20*th November* 1869.)

As regards the third scheme, of decimalizing the rupee, we have already spoken out our mind, not only in favor of the rupee and its sub-divisions into cents, generally on its own merits, but even as preferable to the old and cumbrous system of pounds, shillings, and pence. For taking the original objectors on their own ground, *viz.*, that ten rupees should still be considered a "pound," the proposed decimal system meets their views entirely, except as to the substitution of 100 cents for 24 pence. For, if it really be the case that our leading merchants are so enamoured of the ten-rupee pound, or even so used to it, as to render an alteration undesirable or inconvenient, the adoption of the decimal system will obviate all inconvenience; for a stroke of the pen or a mere point will convert any number of rupees into pounds—to wit, pounds equalizaing ten rupees each, so that 27,235 cents will not only represent 272·35, namely, Rs. 272 and 35 cents, but also (to please the 10-rupee partly) 27-2-35, namely, 72 pounds two rupees and 35 cents.

("*Kanady Herald*," 25*th November* 1869.)

The *Examiner* on Saturday last had another sensible article on the "Everlasting Rupee" in which, arguing in favor of the decimal system, it points out how easily the two opposing parties may be reconciled without sacrificing anything; if only cents be adopted, for instance, it shows that a total of 27,235 may by two touches of the pen be converted into pounds, rupees, and cents, thus, 27-2-35 (being 27 pounds, 2 rupees, and 35 cents).

("*Observer*," 29*th November* 1869.)

The change in the currency is not to be proclaimed until 1st July 1870. We trust that by this time public opinion will have so unequivocally declared itself that the Governor may feel justified in giving us a simple decimal system in connection with the rupee. We notice that Government is about to return a considerable quantity of bronze coins to Britain.

Note by COLONEL RICHARD STRACHEY, R. E., C. S. I., *dated* 28*th March* 1871.

THE first point to consider is whether the Rupee is likely to remain the unit of Indian money account, or whether, within any period to which we can look forward, it is probable that it may be displaced by anything else.

I conclude that it will continue to be the unit, and for the following reasons.

I regard the expediency of having an international *coinage*, as something quite distinct from that of having a universal system of *money account*. The first I believe to be easily attainable, as regards Europe and America, by the modification of the existing *coins*, so as to render them all referrible to a 5-franc coin. But this by no means implies that the national systems of *account* should necessarily be changed, and I don't think that this will be done so as to lead to a uniform system for a long time to come. For our present purposes, in fact, I should regard the period as so remote as not to affect the question now at issue.

* The officer who is to arrange the information will, I believe, have occasion to visit many of the districts as the shortest way of clearing up matters which he does not understand thoroughly, and it will probably be thought advisable that he should do so even while the enquiries are in progress.

I thus arrive at the conclusion that we may regard the pound as likely to remain the account unit of England. From this I further argue that so long as this is the case, any modification of the Indian coinage and system of account, to bring it into better accord with the systems of Europe, must aim at conformity with the pound system of England, and not the franc system of the Continent of Europe.

And this seems to me to follow, because 10 Rupees are approximately equal to 1 pound, and because a conversion on this basis has become habitual, and is convenient, bringing the Indian system into a decimal relation with that of England. It would not be possible, without a great disturbance, to adopt the franc unit in India, and, further, it is generally admitted that the franc unit of *account* is too small.

I conclude, therefore, as before stated, that we may consider the Rupee unit of account as likely to be retained in India, and that any change is likely to be in the direction of making a Rupee a tenth of a pound. How all this may be brought about is a question not directly bearing on the present point; but, whether it ever happens or not, I consider that we shall be safe in working up to a Rupee unit of *account* in any decimalization of the subdivisions of the Indian coinage.

The first thing that is apparent on looking into this subject is that a Rupee being divided now into 16 annas, each of which is divided into 12 pies, the total number of pies in a Rupee is 192. This number is so little different from 200, that there would be no appreciable difference, for purposes or retail trade, between 1 pie and one two-hundredth part of a Rupee. Here a possible basis for a decimal subdivision at once appears.

But a little consideration is necessary before determining what shall be the exact system of sub-division adopted. My conclusion is that we should simply divide the Rupee into 100 parts for purposes of *account*, calling them cents; 1 cent would thus be equal very nearly to 2 pies of the present scale. Hence 1 pie, if such a coin were retained, would be half a cent, and would be written ·005 Rupee. Any smaller fraction than ·005 Rupee could not be represented by coin, if the pie were the lowest in the scale, and such smaller fractions would be disregarded as fractions of pie now are.

To suit the coinage to this arrangement, we should have the existing 8-anna piece equal to 50 cents, the 4-anna piece equal to 25 cents, the 2-anna piece equal to $12\frac{1}{2}$ cents. These two last pieces are not proper members of a decimal coinage, but it would be expedient to continue them for some time, until the new decimal coins were familiar. The new silver coins eventually to be substituted for the 4-anna and 2-anna pieces would be a 20-cent and a 10-cent coin. The last would be easily practicable. The franc silver coinage of Europe has a 20-centime piece, which is only a little more than 8 cents of the Indian scale.

For amounts below 10 cents the coins would be of copper. The largest copper coin now struck is the half-anna, or double pice, equal to about 3 cents of the new scale. I should think a 5-cent coin should be given, supplemented by 2 cents, 1 cent, and $\frac{1}{2}$ cent, the last of which would be the equivalent of the pie and the lowest in the scale.

But as a provisional arrangement, I think it would be well, instead of the 2-cent piece, to coin a $1\frac{1}{2}$ cent piece, which would practically be equal to the $\frac{1}{4}$ anna or common pice; the difference between the existing $\frac{1}{4}$ anna coin and a $1\frac{1}{2}$ cent would only be $\frac{1}{8}$th of a pie, and may be better stated perhaps by saying that 64 of the old coins go to the Rupee instead of $66\frac{2}{3}$ of the new ones.

I also think that if such a system as this is adopted, occasion might be taken to give a more independent position to the 8-anna piece, and to assign to it a specific name, and endeavour to bring it into use as a unit for *payments*. It has long been said by those who have considered the subject, that the interests of all classes of society in India suffer by the inconveniently large value of the coin on which all transactions are based, and in terms of which all payments are made. No doubt, to make a change in this respect will not be very easy; but this, as I have said on other occasions, is all the more reason for setting about the thing at once.

The remedy would be a very simple and very innocent one, and I cannot conceive how the most tender conscience could be alarmed by it. All that is necessary is to give a *new* and *special name* to the 8-anna piece, or half rupee. I would suggest as a suitable name the term '*Hind*,' which is a fair equivalent of '*Franc*.'

The enquiry that has been suggested as to the probability of being able to get a decimalized system of minor coins adopted in India without difficulty, though it might lead to the accumulation of some interesting facts of which we now know nothing or little, seems to me of no sort of practical utility in relation to the essential point at issue. It is altogether impossible to adopt any conclusions at all on such a subject, excepting on somewhat abstract grounds, and all experience proves that whatever coins are issued are in point of fact brought into use. The state of the Indian copper coinage does not, to my mind, in the least militate against the general assertion I thus have made. Where the British pice are properly treated and can be got, they are used with complete readiness, and so it will be with all coins.

What we have to do is to see that the coins we issue will really be convenient, and this can only be ascertained by appealing to reason guided by experience, and not by interrogating ignorance and its consequences.

It is always reasonable to consider how ignorant people can be best got to leave off habits the result of ignorance; but beyond this I, for one, will never be concerned in suggesting the adoption of anything which I know to be bad, only because it is in harmony with something else which I also know to be bad.

To summarize the specific proposals I should desire to make :—

I.—The Rupee, for purposes of account, should henceforth be divided into 100 parts to be called cents. The lowest fraction of a Rupee to be recognised in payments to be half a cent, or the two-hundredth part of a Rupee.

II.—The silver subsidiary coinage to consist of pieces of 50 cents, 20 cents, and 10 cents only.

III.—As a provisional arrangement, and until the new coins are familiar, 4-anna pieces of 25 cents and 2-anna pieces of 12½ cents may still be struck. But they should before long be withdrawn.

IV.—The 50 cent coin should hereafter be called the '*Hind*,' and that name should be stamped upon it. This coin should be a legal tender on the same footing as the existing half-rupee.

V.—The copper subsidiary coinage should in future consist of pieces of 5 cents, 2 cents, 1 cent, and ½ a cent.

VI.—On the 5-cent piece, in addition to the inscription, '5 cents,' should be added '10 to 1 hind.'

VII.—As a provisional arrangement, instead of the 2-cent pieces, coins of 1½ cent should be struck, which would virtually be equivalent to the ¼ anna piece, and should be declared by law to be a legal tender for ¼ of an anna. The words '1½ cent or ¼ anna' should be impressed on these coins.

VIII.—Copper coins should be legal tender for all fractions of a '*Hind*.'

IX.—The relative values of the old and new coins should be declared to be as follows:

8-anna piece	=	1	Hind 50 cents.
4-anna „	=	25	cents.
2-anna „	=	12½	„
Double pice or ½ anna	=	3	„
Pice or ¼ anna	=	1½	„
Half-pice or ⅛ anna	=	1	cent.
1 pie	=	½	„

As long as the old coins were in circulation, they should be receivable at the above rates, but the half pice or ⅛ anna should be withdrawn at once, as being not sufficiently near the 1 cent in value.

X.—As soon as the new coins are issued, the public accounts should be drawn up with the decimal sub-division of the Rupee, and all sums due or claimable in the future, whether by the Government or private persons, should thereafter be dealt with under the new system on the foregoing basis.

Note by Mr. E. Gay, *Deputy Comptroller General dated 27th April* 1871.

I am glad to have the opportunity of submitting a note upon the question of decimalising the Indian coinage.

There are two proposals in these papers,—the first, that full inquiry should be made into the matter; the second, that without any inquiry the whole of the subsidiary coinage of the country should be revolutionised.

It is impossible to object to inquiry, but I hope to be able to show reason for at least pausing before any radical change is made.

It would be tedious to go through the whole of the arguments which induced Parliament to reject the proposal for a decimal coinage in England. I will only note certain points in which the reasoning would affect India differently from England, and then see whether by these differences the objections to a decimal coinage are strengthened or weakened so far as this country is concerned.

It will be admitted that a far larger proportion of calculations is made mentally in India than in England: this arises not only from the comparative scarcity of writing materials, but from the large number of petty purchases made by the poorer classes and the numerous calculations they make of discount, interest, daily rates, and other matters that are almost unknown to the English peasant; accordingly, as we might expect, we find far greater skill in mental arithmetic in proportion to other education in India than in England.

Thus where an English boy learns the multiplication table up to 12 times 12, the Indian boy learns it to 20 times 20, or even 30 times 30. He learns also tables in verse giving rates of daily pay at so much per month, and many other questions which in England could be solved on paper.

Altogether, then, more weight should be given comparatively in India than in England to the convenience which a system affords for mental calculations.

Now the argument that chiefly weighed with the English commission in rejecting the decimal system, was its inferiority for mental calculation; they admitted fully that for philosophers, actuaries, and all persons dealing with large and complicated accounts, decimals would be convenient; but even in England they considered this outweight by the inconvenience a decimal system would cause to the masses.*

* *Extract from Commissioner's report.*

7. "That as regards the comparative convenience of our present coinage and of the pound and mill scheme, for the reckonings of the shop and the market, and for mental calculations generally, the superiority rests with the present system, in consequence, principally, of the more convenient divisibility of 4, 12, and 20, as compared with 10, and the facility for a successive division by 2, that is, for repeated halving, in correspondence with the natural and necessary tendency to this mode of subdividing all material things, and with the prevalence of binary steps in the division of our weights and measures."

From LORD OVERSTONE'S *draft report.*

"The desirability of introducing decimals into the coinage must therefore mainly depend on the results which it would give under the remaining head of inquiry, relating to mental computations. The more the whole subject is considered, the more obvious does it become that facility of mental reckoning outweighs in importance all the other possible qualities of a system of coinage; so much so, indeed, that any decided superiority in this respect would suffice to compensate for very considerable inconveniences in other particulars. Although the superior convenience of our present coinage in some other respects is not, in our judgment, inconsiderable, the grand test of the value of the rival systems of coinage is the readiness with which they may be adapted to mental reckoning, specially to such short computations as occur on all retail purchases. Hundreds of transactions of this kind must be settled, without the aid of paper, for one calculation made with the pen. Many of these are worked, and often, it is said, very well worked, by persons not only ignorant of the processes of paper arithmetic, but unable to read and write; and we think it important to bear in mind a circumstance specially dwelt upon by Dr. Gray, Mr. Bennett, and others, that any change which would interfere with the calculations of the unlettered classes would not only affect the great majority of the population, but would fall upon persons who have not the previous education necessary to enable them to adapt themselves to a new arithmetic.

"In attributing such conclusive importance to this part of the inquiry, we are but repeating the sentiments more or less distinctly avowed alike by the advocates and opponents of decimalization. The following remarks, extracted from the extremely valuable paper contributed by Mr. Bennett, are not in our opinion at all beyond the truth:—

"'I cannot hesitate for an instant to regard retail trade as the primary object to the uses of which the currency should be made subservient. The transactions of retail trade are in the proportion of at least a thousand to one to wholesale dealings; they are in a great majority of instances the subject of immediate payment in money; and they constitute the entire sum of the pecuniary dealings of the poorer and less instructed classes, as well as a large share of the dealings of all.

"'I pass over a great many other points connected with the educational part of the question; but there is one which is much too important to be omitted,—I allude to the process of mental arithmetic, which many acquire by habit and practice alone, and which others derive from rules given by those who have deeply studied the properties of numbers. With a very large portion, unhappily too large a portion, of the community, this is the only arithmetic possible; and yet there are few men, women, or even children of ten years old, of ordinary capacity, who cannot (although entirely uneducated, in the school sense of the term) calculate in our existing coinage all the little money questions which occur to them in daily practice. The power of mental calculation necessary for this purpose has been gradually acquired, like their knowledge of most things around them, by experience; and it seems to me that nothing short of necessity should induce us to deprive them of the fruits of this experience, and to compel them, as it were, to begin the world again with a system of ideas to which they are strangers. The same thing may be said with reference to the peculiar mental calculations connected with almost every branch of trade, the facilities for which depend entirely on the varied relations which figures bear to each other in money, weights, and measures, and which would be abolished under a decimal system. Within the last twenty or thirty years specially, the art of mental calculation has been brought to great perfection with reference to almost all the purposes of life; its great advantages are manifest; it forms an important part of the education of all who are engaged in trade; and yet it is proposed, by way of improvement, to render all the commonly practised methods of this art useless or impracticable.'"

"Indeed, the emphasis with which almost every witness has asserted that the convenience of retail transactions would be best promoted by the system of coinage which he recommends, is in itself a very marked acknowledgment of the extreme importance of this part of the subject."

Again, it can hardly be denied that the people in India are more suspicious of the action of Government than in England; but even there the resistance to change was expected to be formidable. The definite proposal now put forward is to introduce the change at once, and in doing so to assume "that there would be no appreciable difference for purposes of retail trade between 1 pie and one two-hundredth part of a rupee." The difference is precisely 4 per cent, and the extract from Lord Overstone, which I add in a note,* appears an exact answer by anticipation to both proposals even disregarding the special dislike to change on the part of an Indian population.

* *From* LORD OVERSTONE'S *draft report.*

"In his evidence before the late Parliamentary Committee (532), Sir John Herschel says of the proposal to introduce a decimal coinage,—'It cannot be expected that it should not present itself to the lower classes under a repulsive aspect; and without allowing a sufficiently long interval for preparation, and duly familiarizing these classes with the expectation of a change, and giving them an idea of what that change will consist in, it will be quite sure to encounter a very formidable resistance.' It is not easy to see how the people are to be familiarized with the change, except by the gradual circulation of new coins intermixed with our present money. The confusion which would result from the co-existence of two copper coinages differing 4 per cent. in value, is a serious thing to contemplate; but the only other alternative is to disregard Sir John Herschel's warning, and make a sudden change by law in the value of the existing coins, in lieu of issuing new pieces to represent the new values. The requisite alteration in the legal value of the vast mass of copper coin in the country, and of the smaller silver coins, would involve a loss falling on the poorer classes, which may be estimated at 50,000*l*. This would be felt as an act of arbitrary injustice by every one who suffered by the change, and there would therefore seem to be no option but to call in the old coins and issue new ones, with such moderate speed as the extent and difficulty of the operation, and the necessity of avoiding harsh measures of compulsion, would allow. Two systems of coin would therefore remain for some indefinite period, circulating side by side, and our coinage would certainly, during all this time, be worse than that which we have at present. No one who has experienced the inconvenience of the current coinages met with in various parts of the continent would willingly admit the evil, for any considerable time, into this country, even though one of the rival systems should be theoretically perfect. How long this confusion would have to be endured we shall not attempt to predict, but it could scarcely fail to extend over many years."

There are also in India considerations differing in kind as well as in degree from those which influenced the English Parliament.

In this country the names and relations of the present coins are applied to other matters of daily life in a way unknown in England: thus a person is not said to have "a quarter" but "a four annas share;" in fact, ordinary fractions are expressed by means of money, the Rupee being taken as the unit, and its divisions representing the fractions, and for such a purpose a decimal division is notoriously ill adapted.

A practical objection to any change of coins in India arises from the imposition always practised in such cases on the ignorant people. When we know that the money changers took batta on the plea that the Rupee on which the Queen's head had curls was of different value from that on which there were no curls, it is easy to see the fraud that would be practised with coins of entirely new names and value.

The admitted objection that our stamps are calculated on the present coinage is no doubt important, but it is no more so in the case of the price of stamps than in the prices of all other commodities which have gradually conformed to the existing coinage; in that special case it would also inconvenience the Government, in the thousand other cases it would only inconvenience the people.

It is worth notice that, even where a decimal system has been long established, it is constantly ignored in common parlance. A peasant in France will speak of "6 sous" not "30 centimes;" this is still more universal in Belgium;* while even in America the lower orders speak of "a quarter" not 25 cents.

It may be said that this fact removes part of the objection to the plan that, if the people found the change inconvenient, they would ignore it. Supposing, however, that the new system does no good, it will certainly do great harm; not only will the people be liable to extortion when they come in contact with the legal system, but anything which tends to widen the distance between the government and the governed in social matters is much to be deprecated.

On the other hand, it may be possible to enforce the adoption of the system, but if such competent judges as Lord Overstone and Sir J. Herschel (who take opposite sides on the decimal question generally) agree that a difference of 4 per cent. will cause a very appreciable loss to the poor, it may well be considered what would be the political effect of enforcing such a measure in India.

Memorandum on the decimal sub-division of the Rupee from GUILFORD L. MOLESWORTH, ESQ., *Consulting Engineer for State Railways.*

Introduction into Ceylon.

IT is now more than five years since I first mooted the question of decimalizing the rupee in Ceylon. At first the measure was opposed, but the opposition gradually diminished as its fallacies were demonstrated; for, when the proposed change was clearly explained, both Europeans and Natives approved of it, and even many of those who had originally been its active opponents were converted into warm supporters, so that the memorial, praying His Excellency the Governor to adopt the decimal sub-division of the rupee, contained a larger number of signatures from all classes than any petition that has ever been laid before the Government of Ceylon, and I now learn that the measure has just received the sanction of the Secretary of State for the Colonies. I trust that India will soon inaugurate a similar policy. I admit that Ceylon is but a small country in comparison with India, and that changes can easily be made in it which in India are fraught with difficulty, owing to the magnitude of the country; but, on the other hand, India possesses, as I shall presently show, elements which afford greater facilities for decimalization than existed in Ceylon, or, in fact, in any other country in the world. At the same time the subject requires in India a treatment slightly different from that which has been adopted in Ceylon.

Difference between India and Ceylon.

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* *From* LORD OVERSTONE'S *draft report.*

"In Belgium, where the French coinage was introduced in the last century, and finally established by the law of 1832, the transition has been so imperfectly effected, that we are informed that 'in usual life every man in Belgium is compelled to have constantly at hand his tables of reduction of the various moneys, both past and present.' At Antwerp goods are bought and sold in Netherlands money, though, in deference to the law, public sales take place in francs and centimes. The majority of merchants are said to have adopted the legal system of accounts; but small sums connected with the people's daily dealings are generally mentioned in Brabant guilders and stuyvers; farmers and all shopkeepers, specially in the Flemish provinces, still continuing to use the old denominations of coin."

Modifications proposed for India.

As I learn that my original paper on this question was last year officially laid before you, it is unnecessary for me to recapitulate the arguments therein used, or to show how the question of tolls, stamps, and contracts, may be met without difficulty: it is sufficient for my present purpose to add that I would suggest for India a slight modification of the plan originally proposed for Ceylon. The present silver coinage should remain unaltered, and the coinage I recommend will then stand as follows;

Proposed Coinage.

Description of Coins.		Value in cents.	Value in fractions of a Rupee.
Existing Silver Coins ...	Rupee	100	1
	8 Anna piece	50	$\frac{1}{2}$
	4 "	25	$\frac{1}{4}$
	2 "	$12\frac{1}{2}$	$\frac{1}{8}$
New Copper Tokens	1 cent	1	$\frac{1}{100}$
	$\frac{1}{2}$ "	$\frac{1}{2}$	$\frac{1}{200}$

The lowest token would then be half a cent., or the 200th part of a rupee, (the pie is the 192nd part of a rupee).

The Half-cent.

It may be objected that the coinage of a *half* cent. is a violation of the decimal principle; but as Professor de Morgan has ably pointed out, "the mere having of the lowest coin is no disadvantage, it is the abiding delusion of the opponent of decimals that he *will* suppose the decimalist to be under a contract, never to use common fractions." Moreover, the half cent is of so low a value that practically it will not be introduced into accounts. In the accounts of the Public Works of the Government of Ceylon, the farthing (which is about double the value of the half cent) was excluded, although a coin equivalent to the half farthing was in universal circulation.

Advantage in paper transaction.

Before I proceed to show how the decimal sub-division may be introduced without difficulty, I must premise that it is admitted even by the most stubborn opponents of change that for all "paper transactions" (that is, for all calculations on *paper*, in contradiction to *mental* calculation), the decimal system possesses great advantages. I must also meet the popular fallacy which so many even amongst the educated classes entertain, that, in the event of a decimal coinage being introduced, it will be necessary for those who have forgotten their school lore to learn again decimal arithmetic. Nothing can be more fallacious than such an idea. No special preparation is necessary to enable any one to understand and use a decimal sub-division, but those who do use a decimal coinage are unconsciously, and without an effort on their part, *taught* decimal arithmetic, the only difficulty is the slight effort of memory necessary to remember that the half-rupee represents 50, the quarter rupee 25 cents, &c.—a difficulty that could not be one of many days duration even with the most stupid.

Knowledge of decimal arithmetic not necessary.

Issue of Tokens.

Premising this, I propose for the introduction of the decimal system nothing more than the coinage of a small quantity of copper tokens, and an enactment to legalize their circulation. It may be asked what advantage is to be gained by this course? Simply that the fact of such tokens being in circulation would admit of agreement for rates of labor, contracts, and accounts under the decimal denomination; in fact, it would allow facilities for "paper transactions" in decimals. The plan might be introduced first in one district on a small scale, and, when successful, it might be gradually extended, and finally adopted throughout India.

Machinery for introduction of Tokens.

Then comes the question: What machinery would you adopt for the introduction of such tokens, if minted, and what will be the practical working of such an introduction? To this I answer, that there can be no better opportunity for a commencement than in the construction of one of the State Railways on which I would introduce them, but always with the proviso that if it would be found to be prejudicial to the labor market, it should not be pressed. I would select that district which, after careful consideration, I found to afford the fewest obstacles to the introduction, and provide the treasuries in the vicinity of the railway with a supply of the new copper tokens; these tokens should not be used to make entire payments, but simply to meet the balance of those sums which may not exactly coincide with the old system. For instance, supposing 5R. 30Cts. to be due to a man, he would receive 5 Rs. a four anna piece, (25 cents,) and 5 copper cents.

Reluctance to receive new Tokens.

It may be urged that the natives will receive such tokens with reluctance, but a little reflection will show that there is no ground for supposing that the new tokens will not be received by the natives as readily as the existing legal tokens, for so long as the natives are allowed to coin "dumps," and thus make a profit by usurping the prerogative of the Crown, the "dum" will be in favour rather than the legalized token, which circulates at a *nominal* value far higher than its *intrinsic* value; but in spite of the reluctance of the natives to receive the pie, it is evident that Government must make its payment by means of a *legalized* token, and I cannot think that the cents would be looked upon with less favor than existing tokens. On the contrary, it is probable that the natives will prefer tokens which they can get at the rate of 200 to the rupee to those which are only issued at the rate of 192, more especially if the former be made (as they can be made with profit) slightly more bulky than the pie tokens. Even should any reluctance be manifested on the part of the natives to receive the new tokens, they can be informed that 100 cents will be taken in exchange for a rupee at all the Government Treasuries and the Railway Pay Offices.

Necessity for using copper.

I lay a stress on the necessity for using *copper* and not bronze as the metal for these tokens, because the natives, as a rule, like as much metal as possible for their money, and this will account partially for the preference accorded by them to the "dum," which contains a larger proportion of metal than the legalized tokens. The "dumps," which I have examined, fluctuate in value from $2\frac{1}{2}$ to 3 pie per "dump," whilst in weight they equal 5 pie.

Feasibility.

The introduction of new copper tokens presents no greater difficulty than the introduction of the three-penny and four-penny pieces in England; the Government of India cannot be compromised by such a step, as it is committed to nothing beyond the cost of minting the tokens. If successful, as I believe it must be, the introduction of a decimal system will confer a great boon on India, and if not, the coinage of the small quantity of tokens necessary to make the experiment is a matter of no moment. We have at present an inconvenient system of copper tokens which are not acceptable to the masses in India. Why not change it for one that will be eminently valuable? I do not ask for

any sudden alteration in the accounts of Government or in the stamp and tolls; the measure I propose will merely affect the internal working of the construction accounts of that State Railway upon which it may be adopted, but it will serve to demonstrate the possibility of extending the principle. Should the trial be successful, there will be no difficulty in gradually calling in the old copper tokens, and the final change may after a time be easily made.

Objections.

I will now deal with some of the most plausible objections that have been urged against decimalization. Four* commissions or committees in England have reported in favour of decimalization, but a fifth commission (Lord Overstone's 1859,) arrived at conclusions adverse to its adoption.

* Standard Commission of 1841.
Decimal Commission, 1843.
Committee of House of Commons, 1853.
Standard Commission, 1869.

Lord Overstone's Commission.

Lord Overstone, though an able man, was evidently strongly prejudiced against any change, and acted rather the part of the indiscreet partizan than that of the impartial judge. His questions were so palpably unfair that Sir John Herschel, Professor deMorgan, and others pointed out the "unfairness" and "one-sideness" of the questions put to them, and even Mr. Hemmings, the barrister employed by Lord Overstone to revise the evidence, and to attempt to weaken the weighty testimonies of such men as the Astronomer Royal, Sir John Herschel, and Professor deMorgan;—even he was forced to admit that they were unfair. The arguments used in the report of that commission will, therefore, be the strongest that can be urged against decimalization. Now, even admitting for the sake of argument, that the rejection of decimals by Lord Overstone was desirable in the case of England, the strongest reasons adduced by him have no force in India. The great and really the only real objection is in fact the general aversion of all classes to any change, and the attachment of the lower classes to the copper coinage, in consequence of their long use of it. A few ingenious arguments have been urged, such as the facilities afforded by the existing system for mental calculation, but they are simply raised to back up the main question, and are literally of no weight when compared with the difficulty of disturbing the existing copper tokens. Now, such a difficulty does not exist amongst the masses in India; the legalized copper tokens are rejected by the lower classes, and the illegal "dump" of fluctuating value, the native and spurious coins, and the cowrie are very generally substituted for it as the medium for circulation. Still we *must* have *legalized* copper tokens, and we might just as well adopt that form which is universally acknowledged to be the best.

The penny difficulty.

Mental calculations.

In the report of Lord Overstone there appears the following remarkable assertion: "For mental calculations generally the superiority rests with the present system in consequence principally of the more convenient divisibility of 4, 12, and 20 as compared with 10, and the facility for a successive division by 2." Now, even without the assertion of the Astronomer Royal, that the present system is unsuited to mental calculation, whether small or great, it must appear startling to any unprejudiced mind that a system involving three distinct and different bases (or as Professor deMorgan rightly terms it the "quarto-duodecimo vicesimal coinage") should give greater facilities than that which involves but one base, and still more startling does it appear when one of the three favoured bases is practically the same as the single one which is condemned.

Lord Overstone appears to have overlooked the fact that in a decimal system it is possible to dispense with sub-division to a great extent, and to substitute the more easy process of multiplication for the more complicated process of division. Let facts speak for themseles. How many people in England are able to make use of mental calculations in any cases, but those of the most simple

character? Not one in 100! even amongst the educated classes; the so-called "binary"* system does not admit of it. Contrast this with China where the decimal system is in full force. The lower orders of the Chinese perform mental calculation with a facility and rapidity that is impossible under the "binary" system even to well educated men in England. To a mind accustomed to one system, that system, however imperfect it may be, gives the greatest facilities for mental calculation; and I have no doubt that to most Englishmen the so-called "binary" system is the most easy for such calculations; but any man will find, as soon as he has become accustomed to the change, that his power of dealing mentally with figures and numbers will be greatly increased by a decimal system.

Chinese calculation.

Basing an argument on Lord Overstone's startling assertion, one objector urges: "We find greater skill in mental arithmetic in proportion to other education in India than in England." Now this aptitude on the part of the natives appears to me to be the strongest argument possible in *favour* of decimalizing. I observed the same aptitude in Ceylon, and I even found that many of the natives who were entirely ignorant of the first principles of our arithmetic were able to deal with quantities and sums by means of a species of mental calculation with a rapidity that would be impossible on the "binary" system, and this they effect entirely on a system of rough decimals by means of their fingers, and by heaps or rows of *ten*. I had, moreover, occasion to introduce into the Public Works at Ceylon decimal measures of the foot, to supersede the existing medley of cubic yards, heaped bushels, struck bushels, gallons, &c., and I found that the Native Overseers, both Cinghalese and Malabar, evinced an aptitude that surprized me; for, though they were at first averse to the change, they soon became accustomed to it, and in a few weeks not only used the new measures easily, but actually preferred them to the old system to which they had been so long accustomed, and there is little doubt that the natives of India with their natural aptitude for figures will not be slow to appreciate and use the advantages afforded by the decimal system.

Aptitude of Natives for figures.

Another argument has been based on the fact that in France peasants still speak of "sous" instead of "centimes," and in America they adopt the term "quarter" in preference to 25 cents: this, however, proves nothing except that they adhere to the old nomenclature; but even admitting this difficulty to be real, can Lord Overstone deny that the introduction of the decimal system in those countries has conferred benefits far outweighing any such difficulties? On the contrary, he admits that "the reports which have been received from foreign countries, where the decimal principle has been introduced, *concur generally in the statement that the system has been found to work satisfactorily*, and to be an improvement on their previously existing forms of coinage.". Whilst admitting so much, an endeavour is made to weaken the force of this concession on the following points:

Advantage in other countries.

First that in most countries where a decimal coinage has been introduced, decimal weights and measures have been adopted also, and these give great facilities for a decimal coinage; it is admitted, however, elsewhere that, even without this uniformity, the decimal coinage has not worked inharmoniously in America. But even were it not so, this argument has no force in India where the decimal weights and measures have received the approval of the Legislature.†

Harmony with Decimal weights and measures.

* I use the term binary though it is somewhat a misnomer, because there is no convenient term by which our heterogeneous medley of 20, 12, and 4 may be described.

† I see by the papers that a bill is now about to be brought before Parliament for the introduction of decimal weights and measures into England, and that it is warmly supported by the Chambers of Commerce.

The second reason for modifying the verdict in favor of decimals is that those countries which have adopted it have contrasted it with their previous coinage which has been very imperfect; and to the Englishman, averse to change, the £ *s. d.* system *is* perfect until he has had sufficient experience in a country where decimals are used to enable him to appreciate the practical results of that system. Certainly the £ *s. d.* system is perfect when compared with the Indian "anna," "pie," and "dump" system.

Contrast with imperfect systems.

The third objection was that the foreign systems generally consisted of an unit comprising 100 sub-divisions, whereas the system proposed for England contemplated 1,000 sub-divisions. The plan I propose is not open to this objection, as it only comprises 100 sub-divisions like those adopted in the majority of foreign countries.

Number of sub-divisions.

The commission also objected to the proposed system, because it consisted of four distinct denominations *viz.*, "Pounds," "Florins," "Dimes" and "Mils," whereas other decimal coinages in existence consist of two denominations only. This objection is again inapplicable to the system I propose for India which contains only two denominations, *viz.*, Rs. and Cents.

Number of denominations.

It has been objected that the new tokens of $\frac{1}{100}$ in value, if introduced, would practically take the place of the existing tokens $\frac{1}{96}$, and that the difference of 4 per cent. would probably fall on the lower classes in the minor commercial transactions. Such an argument *might* have weight in England where the legalized penny is universally accepted at an unvarying rate; here, however, it has no force because the "dump" is practically (though not legally) the copper coinage of India, and it is subject to fluctuations of more than 12 per cent. Nor can the "dump" be said to be a "binary" division, for it is now being circulated in Simla at the rate of 70 to a rupee. It is evident, then, that the change from the pie to the cent could not affect the smaller transactions of trade. It has been said that a new coin will give opportunity for the buniahs to oppress the poorer classes, but can anything give greater opportunities for oppression than the "dump system."

Retail transactions.

I presume that the Indian Government look forward to the ultimate education of the masses, and a decimal system is a valuable auxiliary in education, because it enables the partially educated man to reach by means of *simple* arithmetic—a point which, under the "binary" system, he cannot attain without the aid of *compound* arithmetic. It has often been asserted that the "decimal system is admirable for the mathematician, but it is of no advantage to the poor man." On the contrary, it is merely a luxury for the mathematician, whilst it is a positive necessity for the man at the foot of the educational ladder; in fact many a man stops short in education daunted by the difficulties of compound arithmetic, but yet unable to make a practical use of his knowledge under the "binary" system.

Education.

It has been urged that the Native mind has been so long accustomed to "binary" sub-divisions that the decimal system would be a hindrance to him; but, on the other hand, there are indications of a tendency to decimalization amongst the natives which show that there is not much weight in this argument. The larger divisions of money, the rupee, the sau, the lakh, and the crore are essentially decimal and thoroughly Indian. Again, I learn that it is a very common practice to sell by the *hundred* produce that cannot be sold by weight. I am informed that the freight of boats is by the *hundred* maunds. The proprietors charge royalty on their jungle produce at so much per *hundred*, and I have no doubt that this practice enters largely into small commercial

Native tendency towards decimalization.

transactions; at all events it shows that the Native mind is not averse to decimal notation in spite of the difficulties under which he labours in consequence of the existing coinage.

To sum up my arguments—

(1.)—The decimal sub-division of the rupee has been approved for Ceylon.

(2.)—India offers special facilities for its adoption.

(3.)—The change necessitates no alteration whatever in the existing silver coinage.

(4.)—All that is necessary is to mint a small quantity of copper tokens.

(.)—The change may be made gradually.

(6.)—No sudden alteration is necessary in the accounts, stamps, or tolls.

(7.)—The natives will receive the new tokens as readily as they receive the existing tokens.

(8.)—The great objections urged against the adoption of decimals in England are inapplicable here.

*(9.)—The lower classes have no attachment to the existing copper tokens.

(10.)—The copper circulating medium in India is virtually not even "binary," but fluctuating.

(11.)—The adoption of the decimal coinage will harmonize and work well with the proposed decimal weights and measures.

(12.)—The coinage I propose is free from the objections urged against that proposed for England both as regards the number of sub-divisions and denominations.

(13.)—The introduction of decimal tokens will not affect retail transactions.

(14.)—The decimal system will be a valuable auxiliary in education.

(15.)—The natural aptitude of natives for figures will facilitate the adoption of decimals.

(16.)—The native mind is not averse to decimalization.

No doubt there will be difficulties as there must be difficulties in every change; but are they of such a nature as to justify us in allowing them to be a bar to progress? The advantages of decimalization are self-evident, and the tendency of all civilized nations is to adopt it. The question ought not to be regarded from a narrow point of view, but in a wide liberal spirit, contrasting the minor difficulties of introduction with the benefits that must accrue from the change not merely to the present race, but to future generations.

SIMLA;
The 10*th July* 1871.

GUILFORD L. MOLESWORTH.

* See the List of Native coins appended hereto.

APPENDIX.

The following list of some of the Native Coins and their value will suffice to show how small an element of the so-called "binary" system exists in India. Even the legalized tokens are not "binary," but fluctuate in India :

District or Presidency.	Name of Native Coins in circulation.	Number usually exchanged for a Rupee.		REMARKS.
		From	To	
NORTH-WEST ...	Agra pice	72	100*	* Equal to a cent.
	Alumghini	...	...	Sold by weight.
	Balashahee	63	63½	
	Bhurtpore	...	...	
	Delhi	80	84	
	Ghisla	50*	...	Equal to 2 cents.
	Goruckpore	64½	71	Fluctuates to 3 cents.
	Jhardar	41	44	
	Munsoorie	66*	84	Fluctuates to 3 cents in value.
	Nawabee	64½	65	
	Pukka pyce	48	...	
PUNJAB ...	Cabullee pice	120	128	
	Chukle	79	...	
	Jummoo	95	...	
	Munsoorie	66	68	Fluctuates to 3 cents in value.
	Nanuckshahee	80	100*	* Equal to the cent in value.
	Takkas	41½	42	
	Thova	47½	...	
CUDH ...	Mudhooshahee	50*	...	Equal to 2 cents in value.
	Munsoorie	66	74	Fluctuates to 3 cents in value.
	Nawabee	64½	70	Fluctuates to 3 cents.
	Nepal	71	...	
RAJPOOTANA ...	Jeypore pyce	47	50*	Equal to 2 cents.
	Jodpore			
	Kolah			
	Munsoorie	64	66	Fluctuates to 3 cents in value.
CENTRAL INDIA	Balashee	58	59	
	Chowdoree	60	...	
	Guzashee	58	...	
	Gwalior	86	...	
	Indore gundas	10	...	Equal to 10 cents.
	Kotah	42	...	
	Kutcha pyce	80½	...	
	Moharaja	67	67½	
	Nunda	80	86	
BENGAL ...	Badsahee	65½	...	
	Goruckpore	68	70	
	Lohya	100	...	Equal to 1 cent.
	Nepaulese	96	...	
BOMBAY ...	Babasayee	66	...	Equal to 3 cents nearly.
	Dhaboo	32	...	
	Ghatty paisa	48	...	
	Mysore	60	64	
	Shewrai	66	...	Equal to 3 cents nearly.

In the Madras Presidency very little Native coin appears to circulate, but the value of the Government pie fluctuates in the bazaars from 192 to a rupee up to 200, or *exactly half a cent.* (at Malabar, Calicut, and Poonamally).

Throughout India the Government pie fluctuates considerably in value, from 192 to 204 pies per rupee, so that in some places (Berar, Mahoda, Bhundara, Lakolee, Chundah, and Nagpore) the pie circulates at a value *lower than the half cent.*

GUILFORD L. MOLESWORTH.

Extract from a letter from G. L. MOLESWORTH, ESQ., *to* M. E. FOSTER, ESQ., *of the Treasury, on the subject of the Ceylon Coinage,—dated* 11*th March* 1871.

"THE contemplated changes in the currency of India must be confined to one of two alternatives; and to either of these alternatives the decimal sub-division proposed for Ceylon would be admirably adapted.

"The first alternative would be to introduce British sovereigns into India, and make the rupee a token (instead of a coin) representing $\frac{1}{10}$th of the sovereign. The rupee having intrinsically a value very slightly in excess of the English two shilling piece, though as a *coin* its value is less than $\frac{1}{10}$th of a sovereign.* As, however, there appears to be a financial difficulty in this course, the second alternative would probably be adopted, *viz.*, to coin a gold piece worth Rs. 10 or about 6 per cent. less value than the sovereign, and to keep the rupee as at present, a coin unchanged in value. In the former alternative if the rupee were considered a *token* representing $\frac{1}{10}$th of a sovereign, the copper tokens would still retain their relative value to the rupee; whilst in the second alternative both the rupee and the copper tokens would remain unaltered, but in both cases the copper tokens would be decimals of the gold coin.

* *Note.*—The Rupee contains 178½ grains of silver, whereas the florin contains only 174½ grains.

"Nearly all changes in currency tend towards decimalization, and even should some other denomination than the rupee be adopted in India (which it is difficult to conceive), the change from one decimal system to another would be easy, and the fact of a decimal system existing in Ceylon would pave the way to any movement in that direction in India."

GOVERNMENT OF INDIA.

DEPARTMENT OF AGRICULTURE, REVENUE, AND COMMERCE.

Rain-fall and Agricultural Prospects in Bengal, Madras, and Oudh.

Statement shewing rain-fall, weather, and state and prospects of the crops in the different Districts of the Lower Provinces of Bengal for the week ending 29*th July* 1871.

Number.	District.	Date of return from each District.	Rain-fall at Sudder Station in inches.	Character of the weather in the District as far as known.	State and prospects of the crops at date.	REMARKS.
1	Bhaugulpore ...	July 29th	6·3	Rainy in North and South.	Ous. generally damaged, Amun very good.	
2	Monghyr ...	„ 22nd „ 29th	3·9 6·7	Favorable ... Favorable generally.	Fovorable. Bhadoi partially damaged Paddy cheerful.	
3	Purneah.					
4	Godda.					
5	Nya Doomka ...	„ 29th	2·4	Seasonable ...	Very favorable.	
6	Rajmehal ...	„ 29th	4·	Easterly winds. Little cloudy.	Very good. Jenarah poor owing to much rain.	
7	Deoghur ...	„ 29th	2·1	Very favorable...	Very good.	
8	Burdwan.					
9	Bancoorah.					
10.	Beerbhoom ...	„ 22nd	3·1	Generally cool ...	Transplanting begun. A little more rain would be good.	
		„ 29th	2·5	Some heavy showers.	Very good. A little more rain in some parts is desirable.	
11	Hooghly.					

Number.	District	Date of return from each District.	Rain-fall at Sudder Station in inches.	Character of the weather in the District as far as known.	State and prospects of the crops at date.	REMARKS.
12	Howrah ...	July 29th	3·0	Favorable ...	Very flourishing on high lands; failure where the water is deep.	
13	Midnapore ...	„ 29th	1·3	Ditto ...	Good, but it depends on the continuance of rain.	
14	Chittagong.					
15	Tipperah.					
16	Bullooah.					
17	Dacca.					
18	Backergunge ...	„ 22nd	4·9*	Rainy ...	Good ...	* From 1st January to 15th July 1871, 51·8 inches.
19	Furreedpore.					
20	Mymensingh.					
21	Sylhet ...	„ 24th	4·5	Rain in abundance.	Most satisfactory.	
22	Cachar.					
23	Cuttack.					
24	Balasore ...	„ 29th	·6	Close and steamy, but not unhealthy.	Good.	
25	Pooree.					
26	Nuddea ...	„ 29th	4·3	Generally favorable. Much fever at Ranaghât and Sudder.	Generally flourishing.	
27	Jessore.					
28	24-Pergunnahs.					
29	Patna ...	„ 29th	3·4	Rather rainy ...	Bhadoi much injured. Paddy promising.	
30	Gya.					
31	Chumparun.					
32	Sarun.					
33	Shahabad ...	„ 28th	2·0	Heavy rains ...	Bhadoi crop injured by early rain. Rice promises well, and sugar-cane excellent.	
34	Tirhoot.					
35	Rajshahye.					
36	Bograh ...	„ 21st	5·8	Cloudy and squally.	Good.	
37	Dinagepore ...	„ 22nd	8·8	Wind variable and constant showers.	Favorable.	
38	Maldah ...	„ 22nd	4·8	Continual rain ...	Fair.	
39	Moorshedabad.					
40	Pubna.					
41	Rungpore.					
42	Lohardugga.					
43	Hazareebaugh ...	„ 29th	3·8	Seasonable ...	Very favorable, but more rain wanted.	
44	Maunbhoom ...	„ 22nd „ 29th	4·9 1·3	Favorable .. Ditto ...	Favorable. Thriving.	
45	Singbhoom.					
46	Durrung.					
47	Kamroop.					
48	Luckhimpore.					
49	Nowgong.					
50	Seebsaugor.					
51	Darjeeling ...	„ 21st	61·2†	Very rainy, but seasonable and healthy.	Hill crops in good condition.	† From 1st January 1871.
52	Gowalparah.					
53	Julpigoree ...	„ 22nd	3·2	Seasonable ...	Fair.	
54	Cooch Behar ...	„ 22nd	‡	Good deal of rain.	Good ...	‡ No rain-guage kept.
55	Hill Tracts of Chittagong.					
56	Khasi and Jynteah Hills.					
57	Garo Hills.					
58	Pakour ...	„ 29th	·8	Dry ...	Janerah half expected. Paddy good.	

N. B.—The columns of the Districts from which returns have not been received, remain blank.

AGRICULTURAL PROSPECTS IN OUDH DURING THE WEEK ENDING 7TH JULY 1871.

THE District returns of rain-fall contain the following information:

LUCKNOW DIVISION. *Lucknow.*—No remarks.

Oonao.—Makai, dhán, juár, &c., being sown.

Barabunkee.—Kharíf crops doing well, but cultivators wish for a little dry weather to plough up land for wheat-sowing after the rains.

SEETAPORE DIVISION. *Seetapore.*—Rains generally favorable for the kharíf. Some damage caused by flooding of the Gogra.

Hurdui.—Prospects favorable.

Kheree.—No remarks.

FYZABAD DIVISION. *Fyzabad.*—No remarks.

Baraich.—Men are busy with their cultivation. Kharíf crops are being sown everywhere.

Gondah.—Prospects of the autumn harvest are favorable.

RAI BAREILLY DIVISION. *Rai Bareilly.*—There is nothing to add to my last remark, except that the rains during the last week have been heavy.

Sultanpore.—A good harvest expected.

Pertabgurh.—The crops sown are coming up well. People are busy weeding and sowing their fields.

Remarks by the Officiating Chief Commissioner.

The prospects are generally good, but in some parts there have been apprehensions that damage will result from the rain being too continuous and heavy.

AGRICULTURAL PROSPECTS IN OUDH DURING THE WEEK ENDING 14TH JULY 1871.

THE District returns of rain-fall contain the following information:

LUCKNOW DIVISION. *Lucknow.*—No remarks.

Oonao.—No remarks.

Barabunkee.—A little dry weather is now much needed to enable the crops to be weeded, and the land intended for wheat to be ploughed.

SEETAPORE DIVISION. *Seetapore.*—Rain almost daily, but not heavy. Constant rain beneficial to rice and sugar-cane crops, but delays sowing juár, Indian-corn, arhar, &c. Some damage caused by flooding of rivers.

Hurdui.—Prospects favorable.

Kheree.—No remarks.

FYZABAD DIVISION. *Fyzabad.*—No remarks.

Baraich.—Ploughing and sowing are going on everywhere.

Gondah.—A "break" of fine weather is much to be desired.

RAI BAREILLY DIVISION. *Rai Bareilly.*—Rain continues to fall daily and prevents the sowing of the "Aghani" crops, bájra, juár, mothí, &c., otherwise the season so far is good.

Sultanpore.—A great deal of rain has fallen during the week, but no damage done yet. Crops looking healthy.

Pertabgurh.—The crops already sown look healthy and promising. A little fine weather is now wanted.

Remarks by the Officiating Chief Commissioner.

There is a general feeling that a break in the rains is now wanted, although the prospects are still good.

AGRICULTURAL PROSPECTS IN OUDH DURING THE WEEK ENDING 21ST JULY 1871.

THE District returns of rain-fall contain the following information:

LUCKNOW DIVISION. *Lucknow.*—No remarks.

Oonao.—Prospects good.

Barabunkee.—Some dry sunny days are much needed as the kodo, sugar-cane, and juár crops are suffering from the excess of rain.

SEETAPORE DIVISION. *Seetapore.*—Constant rain though beneficial to sugar-cane is prejudicial to kharíf sowings to a great extent. If the rain cease for a time, even now, there will be no harm done to any considerable extent.

Hurdui.—Cultivation kept back by excessive rain.

Kheree.—No remarks.

FYZABAD DIVISION. *Fyzabad.*—No remarks.

Baraich.—Ploughing and sowing are going on everywhere.

Gondah.—A little fine weather is desirable.

RAI BAREILLY DIVISION. *Rai Bareilly.*—There is nothing to add to the remarks of last week, except that the cultivators are patiently waiting for a few dry days to enable them to sow the "Aghani" crops, which seem to be very backward.

Sultanpore.—Rain fell unusually frequently in this week, and the River Gomti flooded and did damage to some of the villages near it. Elsewhere the river has been favorable to crops, and the prospects are good.

Pertabgurh.—Prospects of crops are favorable. Rice is being transplanted. Sugar-cane is thriving well. Rain-falls almost daily, and cultivators are anxiously looking out for fair weather to enable them to sow bájrá and mothí.

Return of rain-fall for the Province of Oudh for the week ending 7th July 1871.

DISTRICTS.	Fall during the week.		Total fall from 1st June 1871.		REMARKS.
	Inches.	Tenths.	Inches.	Tenths.	
Lucknow ...	4	3	16	...	
Oonao ...	2	1	10	2	
Barabunkee ...	2	2	10	1	
Seetapore ...	4	3	10	7	
Hurdui ...	1	2	6	...	
Kheree ...	5	...	12	7	
Fyzabad ...	1	9	8	6	
Baraich ...	7	9	14	4	
Gondah ...	3	6	9	2	
Rai Bareilly ...	2	5	11	5	
Sultanpore ...	2	4	10	4	
Pertabgurh ...	2	8	9	3	
Provincial average	3	4	10	8	

Return of rain-fall for the Province of Oudh for the week ending 14th July 1871.

DISTRICTS.	Fall during the week.		Total fall from 1st June 1871.		REMARKS.
	Inches.	Tenths.	Inches.	Tenths.	
Lucknow ...	5	4	21	4	
Oonao ...	4	3	14	5	
Barabunkee ...	4	4	14	5	
Seetapore ...	3	9	14	6	
Hurdui ...	5	3	11	3	
Kheree ...	11	4	24	1	
Fyzabad ...	6	4	15	...	
Baraich ...	6	5	20	9	
Gondah ...	5	9	15	1	
Rai Bareilly ...	2	5	14	...	Report of Tahsil Salone not received.
Sultanpore ...	5	8	16	2	
Pertabgurh ...	5	5	14	8	
Provincial average	5	6	16	3	

Return of rain-fall for the Province of Oudh for the week ending 21st July 1871.

DISTRICTS.	Fall during the week.		Total fall from 1st June 1871.		REMARKS.
Lucknow	3	6	25	...	
Oonao	3	...	17	5	
Barabunkee	4	7	19	2	
Seetapore	6	...	20	6	
Hurdui	3	9	15	2	
Kheree	8	2	32	3	
Fyzabad	7	5	22	5	
Baraich	7	1	28	...	
Gondah	5	5	20	6	
Rai Bareilly	3	2	17	2	
Sultanpore	7	3	23	5	
Pertabgurh	8	7	23	5	
Provincial average ...	5	7	22	...	

Prospects of the Cotton Crop in the Central Indian Cotton Field.

From H. RIVETT-CARNAC, ESQ., Cottton Commissioner, to the Secretary to the Government of India, Department of Agriculture, Revenue, and Commerce,—No. 3693, dated Camp Nagpore, the 29th July 1871.

I HAVE the honor to submit, for the information of His Excellency the Viceroy and Governor General in Council, copy of a telegram addressed this day to the Secretary to the Chamber of Commerce, Bombay, giving the latest information regarding the prospects of the cotton crop in the Central Indian Cotton Field.

2. It will, I am confident, be observed with some interest that the rain having fallen during the past week in West Berar, the prospects of the cotton crop have improved.

Copy of telegram to Secretary to the Chamber of Commerce, Bombay.

SINCE my letter of 19th instant crop prospects have improved.

Reports from Wurdah Valley and East Berar are favorable. In West Berar sufficient rain have fallen during the week. Mr. Dunlop reports "prospects are now better; the young crops look well; they have got a fair though late start."

Reports of the Great Trigonometrical, Revenue, Topographical, and Geological Surveys of India for the year 1869-70.

From Her Majesty's Secretary of State for India, to the Government of India,—No. 17 (Geographical), dated India Office, London, the 31st May 1871.

I HAVE received and considered in Council your Excellency's despatches dated February 1st (No. 3), March 22nd (Nos. 10 and 12), March 29th (No. 14), and March 30th (No. 15), transmitting the reports of the Great Trigonometrical, Revenue, Topographical, and Geological Surveys for the year 1869-70.

2. The report of the Great Trigonometrical Survey shows a very satisfactory amount of completed work of an interesting and valuable character, both as regards the progress of the remaining series, and the operations connected with levelling, pendulum, and latitude observations. The topographical work, under the superintendence of Colonel Walker, is also being energetically pushed forward, and I perceive that a specially elaborate survey has been made of Raneekhet, with every contour line correctly delineated, instead of being filled in by eye, which does great credit to Major Montogomerie and his party.

3. The survey of Guzerat has been fairly commenced by one of Colonel Walker's parties, but it is much to the regretted that the previous work of the Bombay Revenue Surveyors should have proved to be so erroneous, as that no portion hitherto examined can be accepted as reliable for topographical purposes. In the revenue surveys under Colonel Thuillier, as well as in those of Madras, the work is systematically connected with the great trigonometrical points, and is thus always available for geographical purposes, and for the construction of useful maps on reduced scales.

The opposite system in Bombay confines the uses of the revenue survey to purely fiscal purposes, and must now entail a considerable amount of unnecessary work and expense, which might easily have been avoided. I trust that, in future, no surveys of any description will be carried on in any part of India, which are not carefully connected with stations of the great trigonometrical series, and that all maps for revenue purposes will be prepared with a view to their being eventually combined and reduced for general use.

4. The very remarkable journey of the Mirza across the Pamir Steppe to Kashgar, is another instance of the excellence of the method which Major Montgomerie has adopted for the exploration of countries beyond the British frontier. The able and well-digested paper in which that officer has described the journey of his intrepid Native subordinate, discussed the results of his observations and compared his work with that of previous explorers, is a most valuable contribution to geographical knowledge. Major Montgomerie will doubtless have further opportunities of continuing his very effective system of exploring by the aid of trained Natives.

5. The re-determination of the expansion of the standard for, and the final reductions of, the base lines, has enabled the printing of the details of the operations connected with the standards of measure and the base lines to be proceeded with, and Colonel Walker is to be congratulated on having now been able to bring out the first volume of the "Account of the Operations of the Great Trigonometrical Survey of India." This great work cannot fail to excite considerable attention among the scientific men both in England and on the Continent; and I have to request that a sufficient number of copies may be forwarded to this Office to ensure the distribution of the work in all quarters where its value will be understood and appreciated.

6. Colonel Walker describes in his report the severe and perilous character of the work conducted by Mr. Shelverton on the Beder Longtudinal Series, which entailed a sojourn in the same wild unexplored region near the Godavery, where Sir George Everest and all his party were struck down with malignant fever half a century ago. Mr. Shelverton, with a noble devotion to duty, remained too long at his post in spite of the fever which had once already prostrated himself and had killed several of his men. I am concerned to hear that this accomplished Surveyor, whose name is connected with several important operations in the

previous history of the survey, has, since the date of Colonel Walker's report, fallen a victim to his zeal for the public service.

7. The revenue surveys in the Bengal Presidency, under Colonel Vanrenen and Major Macdonald, have covered an area of 21,054 square miles during the season under review, and I perceive that some useful levelling work has been added, which will greatly enhance the value of the maps. Their interest is also increased by careful delineation of the ancient and present beds of rivers which have changed their courses, as in the Cooch Behar District, where this feature has been attended to. The illustration of comparative geography is often useful to the historian and the antiquary, while the changes that are thus indicated not unfrequently supply practical suggestions to engineers and administrators. An instance of the general utility of these maps is given in a letter from the Engineer of the Indore State Railway, who reports that, in Nimar, they saved the necessity of making fresh surveys for the railway, and aided and expedited his progress very materially.

8. Colonel Thuillier has pushed forward his very useful and ably-conceived topographical surveys with his accustomed zeal, and has, during the last season, furnished a considerabe amount of new material for portions of the Atlas Sheets. I have noticed the first issue of the two quarter sheets of the Indian Atlas in a separate despatch, but the efficient way in which the lithographic and photo-zincographic branches of Colonel Thuillier's Office are conducted, are deserving of equal commendation. The speedy issue of the results of the surveys in progress, and the way in which the enormous and rapidly-increasing demand for maps is met, bear striking testimony to the administrative talent of the Surveyor General and to the zeal and ability of his staff. Captain Murray and Lieutenant Waterhouse have seconded the efforts of their chief in a way which specially elicits my cordial approval.

9. The geological survey of India, under the superintendence of Dr. Oldham, is beginning to show considerable progress by the colored patches on the Index Map, and the systematic and methodical way in which the survey has been conducted in the face of great difficulties caused by the absence of reliable maps in many instances, is particularly satisfactory. The principal work during the season under review has consisted in the examination of regions in the Nerbudda Valley and Central India, the mapping of the Valley of the Upper Kistna by Mr. Foote, the exploration of the Berar and Chanda Coal-fields, and of the trap rocks in their vicinity, and the investigation of other coal districts, and of a promising lead-vein by Mr. Blanford. I am impressed with the zeal and devotion of the members of the geological survey, whose numbers, I regret to find, are annually thinned by disease and death. The value and importance of their results will be some compensation for the peculiarly severe and arduous nature of their duties, which, I am aware, is not at all too strongly stated by Dr. Oldham. Several copper-plates required for preparing the transfers for geological purposes, have already been despatched from England, and the maps will doubtless be issued without much further delay. I perceive that two quarter sheets are nearly ready.

10. I have perused these survey reports with much interest, they are records of a very satisfactory amount of work, well and zealously performed, and I have to request that an expression of my approval may be conveyed to Colonel Walker, Colonel Thuillier, and Dr. Oldham, of the way in which the duties have been performed by themselves and by the officers in their respective departments.

Report on the progress and results of borings for coal in the Godavari Valley near Dumagudem and Bhadrachalam, by W. T. Blanford, F. G. S., Deputy Superintendent, Geological Survey of India,—dated Calcutta, the 6th July 1871.

The occurrence of fragments of shaly coal in the bed of the Godávari close to the spot where the Tál River joins it from the north, about twelve miles above Dúmagúdem, has been known for several years. It was noticed by Mr. Wall in his report of his journey to Kota near Sironcha in 1857, and the coal was by him supposed to be derived from the Tál River. An examination of the Tál for a considerable distance above its junction with the Godávari, however, having proved fruitless, Colonel Haig, the Superintending Engineer of the Godávari Navigation Works, asked me to examine the spot when I was marching down the valley in May 1867. I found that in the Tál, near its junction with the Godávari, the only rocks exposed belonged to the Tálchir group, whilst the Damúda shales and sandstones, which alone have been hitherto found in the Indian Peninsula to contain coal, appeared at the spot where the smaller stream joined the Godávari, and I suggested that the coal probably came from a seam buried beneath the sand of the river, and advised exploration by digging away the sand and closely examining the rocks. This was done by Mr. Vanstavern, Executive Engineer, and resulted in the discovery of coal in four places, all a little lower down the river than the

mouth of the Tál, so that the bed from which the fragments first found were derived has not yet been detected, but as a large quantity of silt and sand has been accumulated near the mouth of the Tál of late years, it is probably now covered to a considerable depth. The quality was inferior. Of the seams found, two, neither of them exceeding two feet in thickness, were detected close to the left bank of the river, opposite the village of Lingálá. The quality of the coal is rather inferior, and both seams thin out and disappear within a few yards; moreover, as the dip of the rocks at Lingálá is towards the river bed, or south-west, and the outcrop exactly parallel with the bank, it is clear that the beds, even if of good quality, could not be easily worked at this spot, as the whole of them within any reasonable depth must be beneath the bed of the river.

The third seam found crops out in the middle of the river bed; it is about 5 feet thick, and the quality appears better than in the other seams. The reef of sandstone resting on this coal can be fairly traced at intervals for some distance, and after running along the river for about a mile, it turns in towards the right or south-west bank. Here its course becomes obscure. Borings were put down by Mr. Vanstavern near the spot where the coal would probably crop out on the bank, but without success. Another thin seam, only 2 feet thick, has also been detected by Mr. Vanstavern on the right bank of the river. This, like the two first met with, thins out within a few yards in one direction.

I reached Dúmagúdem on the 25th December 1870, and learned from Colonel Haig that besides the coal at Lingálá near the mouth of the Tál, some had been reported farther down the river at a village named Madávaram below Bhadráchalam. This place is below the first barrier on the Godávari, and is consequently at all times in free communication by water with the coast, whilst Lingálá is above the first barrier, and although communication is now possible during the greater part of the year, it is not easy for laden boats except for a few months. At the spot where coal was said to have been found, I could detect nothing except some shaly dark-coloured sandstone, but the rocks around were unmistakeably Damúdas and there was every reason to hope for success in the search.

An examination of the ground showed that the Damúda rocks extend for a short distance on both banks of the river, but that sections are very few and imperfect. On the left bank which belongs to the Upper Godávari* Districts, there are scarcely any rocks visible except at the hills near Daorpali, and these are probably of a higher group, nearly the whole surface elsewhere being covered with alluvium. The beds appear to extend about six miles along the river from Gogubáká to Nándigúr, but not more than from a mile to a mile and-a-half from the bank. On the right (south) bank of the river they extend about five miles from Paláram to the bend below Madaváram, stretching for a mile and-a-half to two miles inland. Above Paláram there is a break occupied by metamorphic rocks for a mile and-a-half; above this, again, at Pundigúl the Damúdas re-appear and occur for about one and-a-half miles to a little above Amraváram, then they are covered apparently by the Kámthis, but the two groups here resemble each other so much in mineral character that their limits are difficult to define, especially as nearly the whole surface of the country is thickly covered with alluvial deposit. The Damúdas near Amraváram cannot be traced more than about a mile and-a-half from the river's banks, beyond this limit they are entirely overlapped by the Kámthis.

Along the right (or south) bank of the Godávari a tolerable section of the Damúdas is exposed, consisting of conglomerate, sandstone, shale and clay, but no coal. There are, however, many breaks in the section, and it is evident that an examination of these by boring would prove conclusively the presence or absence of any bed of coal extending over the whole field. Local beds, of course, might be found eleswhere, but their value must be comparatively small. It is also manifest that a thorough exploration can only be made south of the river, as to the north the beds are so much concealed that, except in a few spots, all borings must be put down at haphazard.

The general dip seen in the river's bank near Madaváram is to the westward, the rocks at the village being inclined at a high angle and much broken and disturbed; a short distance to the east down the river is an anticlinal, at the spot where a small stream enters the river. From this point eastwards to the bend of the river, a distance of less than a quarter of a mile, the rocks either have a low dip to the east or are horizontal, and the prevalence of conglomerate shows them to be in all probability near the base or limit of the formation.

It is evident that the anticlinal exposes the lowest rocks to be seen on the river bank, and that a boring at this spot must penetrate beds lower in the series than any exposed elsewhere. On the arrival of the boring tools, I arranged with Mr. Vanstavern for a borehole to be begun at this spot. This was commenced on January 17th and carried on until April 12th, up to which time 192 feet had been penetrated; the borehole was then stopped in consequence of the

* I do not know who bestowed this name on the Districts, but it is an absurd misnomer. The Upper Godavári can only be that portion of the river's course above its junction with the Pranhitá, if not higher still, where it traverses the Bombay Presidency. Sironcha at the upper extremity of these—"Upper Godávari Districts"—is 210 miles as the crow flies from the mouth of the river, and 400 miles from its source!

tools being required to prove the coal discovered on the opposite side of the river. The section passed through was—

		Ft.	In.
1.—	Brown sandstone	24	6
2.—	Shale and clay of various colours, mostly dark-grey	21	1
3.	Coal and shale mixed	0	6
	Dark-grey shale	0	7
	Ditto ditto with fragments of coal ...	0	8
	Ditto ditto	18	9
4.—	White sandstone conglomeratic in places, with thin beds of shale towards the base ...	53	9
5.—	Shale and clay with a little sandstone ...	37	2
6.—	Coal	0	8
	Black shale and coal	1	4
7.—	Dark-grey shale with a few fragments of coal in two places...	26	1
8.—	White sandstone	8	4
	Total ...	193	5

I next arranged for a series of fourteen borings to explore the portions of the section not exposed in the river banks to the west of Madaváram between that village and Damarcherla. These varied in depth from six to 200 feet, according to the extent of the breaks in the section, and the plan proposed was that all the smaller, boreholes not exceeding 35 feet in depth, nine in number, should be made by jumpers with extra lengths of light rods to screw on. The remaining five boreholes alone would require the use of the heavier boring rods. In the ground opposite Madaváram no boreholes were put, because the breaks on the section are trifling, and the disturbance so great that there is reason to believe that a repetition of of beds takes place.

To the west of Damarcherla one or two additional boreholes might have been required, but a little beyond the village the beds turn up, dipping east, and then roll over again, and just beyond the small anticlinal, very unpromising conglomerates, perhaps belonging to a higher group, come in, in which there is no break of section which could conceal a coal seam. Two or three small jumper holes were put down to the east of Madaváram.

* * * * * *

It should be stated that the borings, so far as they had been carried out on the right bank, had shown the existence of sandstones and shales similar in every respect to those seen in the bank of the river, except that in two or three instances small fragments of coal proving the existence of very thin seams, probably not exceeding two or three inches in thickness, had been brought up by the borer. These little seams, although absolutely worthless in themselves, are of importance, as indicating that the mineral does occur in the beds, and that hopes may be entertained of larger seams being found.

The place selected for a boring on the north or British bank of the Godávari was on the right or west bank of a stream called the Ganar, rather less than half a mile from the Godávari, and about the same distance east of the village of Tátpali, at a spot where some brown sandstone, dipping to the south, is seen on the bank of the watercourse. A little more sandstone of the same kind is seen up the stream to the north, and then metamorphics crop out, the latter appearing about 500 yards north of the spot selected for boring. For some distance east and west all is alluvium. It was hoped that a borehole at the spot selected would afford a section of the lowest Damúda beds, lower than any passed through in the boring east of Madaváram. The borehole was commenced on the 12th April, and the section traversed was—

		Ft.	In.
(No. 1).	Soil and gravel	8	6
	*1.—Brown and yellow sandstone	25	6
2.	Shale, pale above, darker below	7	0
	Coal	3	0
	Do. mixed with shale	1	0
	Dark carbonaceous shale	5	0
	Coal	3	0
	Dark shale with 2 inches coal	6	0
	3.—White sandstone	27	0
		86	0

* The numbers 1, 2, 3, before the several beds in the sections, indicate those which are supposed to be representative of the same part of the series in each.

The higher 3 feet of coal appears to be of better quality than the lower; an analysis of the small fragments washed from the samples brought up from the borehole gave the following (average of three samples from three different levels):

Volatile ...	37·7
Carbon ...	42·7
Ash ...	19·6
	100·0

The volatile portion comprised 10·8 per cent. of water. This is by no means a good result, but still some use could be made of such coal, and it should be remembered that analyses of such samples as are obtained from borings are only approximations, although they are usually not far from the true composition.

When I heard of the discovery of coal I was about forty miles from the spot. I marched to it at once, but before I reached it, Mr. Heppel, who was carrying on the borings, had commenced a second borehole on some sandstone in the bed of the Ganár stream below No. 1 borehole at a distance from the first of 125 yards south-east by east. This (No. 2) gave the following remarkable section:

			Ft.	In.
(No. 2).	1.—	Yellow and brown sandstone ...	28	0
	2.	Shale, partly dark-grey, partly buff	1	6
		Coal	2	0
		Shale	2	2
		Coal	0	6
		Shale	0	6
		Coal	1	4
		Shale	1	4
		Coal	1	0
		Shale	1	2
		Coal	1	8
		Shale	1	2
		Coal	1	11
		Shale	0	10
		Coal	1	0
		Shale	2	3
		Coal (shaly)	1	9
		Shale	1	4
		Coal	0	8
		Black shale	5	0
	3.—	White sandstone ...	3	2
			60	8

Altogether the combined bed of shale and coal measures 29 feet 6 inches, of which 11 feet 8 inches is coal, but the bands of coal and shale are intermixed in a way which would much increase the cost of working the seam. The astonishing change, however, in so short a distance as 125 yards from a bed 25 feet thick containing 7 feet of coal in two well defined seams exceeds anything usual even in India, amongst the very variable seams sometimes met with in the Barákár group, and this amount of change within so short a distance rendered it doubtful whether the seam could be traced to any distance.

It was now desirable, 1*st*, to ascertain the extent of the seam, and 2*nd*, its quality. For the extent two boreholes were put down, one to the east, the other to the west, at a distance of about one-third of a mile from No. 1 on the supposed strike of the coal seam. All the ground east and west for a considerable distance being completely covered by alluvium, the true strike could only be inferred from the line of outcrop of the metamorphic rocks to the northward. To the east the borehole (No. 4) was a complete failure. It was put down in an open plain north of the village of Ganára. It passed through 34 feet of earth and 18 feet of quicksand, in which no further progress could be made, as the sand filled the tube faster than it could be removed by the "pump" or mineral lifter. A second borehole 200 yards farther south (No. 5) was equally unsuccessful. After passing through 22 feet of soil and 24 feet of quicksand it also had to be abandoned. There was not time for more attempts in this direction.

The boring to the west (No. 3) was on higher ground, just south of the village of Tátpali. It gave—

			Ft.	In.
(No. 3.)		Soil and gravel	3	7
	1 ?	Sandstone, yellow, brown, and red	29	9
	2 ?	Pale coloured shale	10	0
		Red and yellow sandstone with some shale	7	0
		Shale, pale and dark	13	0
	3 ?	White sandstone with a little shale and brown sandstone ...	24	8
			88	0

In my absence this borehole was stopped by Mr. Heppel, and another (No. 6) started 250 yards to the south-east. This was on somewhat lower ground, and as the beds dip south at a low angle the section is probably that of the same beds :

			Ft.	In.
(No. 6).		Soil	11	0
	1 ?	Brown sandstone	13	10
	2 ?	Buff shale	6	0
		Red sandstone	2	0
		Dark shale	6	0
	3 ?	White sandstone with darker bands	46	0
			84	10

These sections I am strongly inclined to believe are in the same beds as Nos. 1 and 2. We have the same general succession, brown and yellow sandstone above, then a thick bed of shale, and then white sandstone. I have recommended that one of the boreholes should be carried out to a greater depth on the possibility of these beds belonging to a higher horizon, but I cannot think this at all probable. The evidence afforded by these boreholes appears to indicate that the coal thins out and disappears to the westward within a short distance.

Meantime a locality for a small pit had been selected up the Ganár stream, 350 yards north-east of No. 1 borehole, at a spot where some yellow sandstone, just like that immediately over the coal, crops out in the bank of the nala, in the expectation that this would be close to the outcrop of the coal, and that a sinking of a few feet would produce abundance of coal to enable the quality to be fairly tested. A jumper hole, subsequently deepend by boring (No. 7) was put down in order to ascertain the presence of the coal. This gave—

			Ft.	In.
(No. 7).	1.—	Yellow sandstone	29	6
	2.	Buff shale	24	0
		Dark shale	6	0
		Coal	1	3
		Dark shale	26	3
			87	0

showing that the beds are nearly flat, and that a great increase of thickness in the shale has been accompanied by a diminution in the coal. A pit was therefore commenced close to No. 2, but when it was only 13 feet deep, the quantity of water met with retarded progress so much that it was considered advisable to commence another on the high ground 30 yards west of No. 1, as, although it would be a little deeper, it would not be equally liable to flooding, and might be used for the extraction of coal. A borehole has shown that the section is the same as at No. 1. This pit is now in progress.

Meantime one more boring (No. 8) was made only 200 yards west-by-north from No. 1. The section was—

			Ft.	In.
(No. 8).		Soil and gravel	10	5
	1.—	Coarse brown sandstone	4	0
	2.	Light coloured and buff shale	9	0
		Red standstone	3	0
		Light blue shale	2	9
		Red sandy clay	14	3
		Variegated clay	13	0
		Dark shale	21	7
		Total ...	78	0

This boring was in progress when I had to leave at the end of May, and I have not yet received accounts of its completion. The enormous thickness of shale recalls the section in No. 7, and both sections may possibly be below the white sandstone which underlies the coal. But it is more probable that the shale represents the shale and coal found in the two first boreholes.

Lastly, as the absence of coal had been proved to the north-east and west, and no borings had been found practicable to the east, while the ground to the south appeared equally unfavorable for boring, except at a place on the bed in the Godávari where operations might at any moment, at the season now reached (June), have been stopped by a rise in the river, a borehole was recommended 200 yards south of No. 8 and south-west of No. 1. This (No. 9) has given the following section, sent to me by Mr. Vanstavern since my arrival in Calcutta—

			Ft.	In.
(No. 9.)		Soil, &c.	39	0
	1.—	Brown Sandstone and conglomerate... ...	23	0
	2.	Dark shale	3	0
		Ironstone	2	6
		Shale	2	0
		Coal	1	6
		Shale	2	0
		Coal	2	1
		Shale, carbonaceous	2	0
		Coal	1	6
		Shale, carbonaceous	1	6
		Coal	1	6
		Shale, carbonaceous	1	0
		Coal	1	0
		Shale, carbonaceous	2	0
		Coal	1	0
		Shale, carbonaceous	1	0
		Coal	2	0
		Shale	23	0
			112	7

The section is remarkably like that at No. 2. It decidedly strengthens the evidence in favor of all the boreholes having passed through the continuation of the same beds, for we have in this case a great thickness of shale as in Nos. 7 and 8, with the coal as in No. 2. The total thickness of coal as yet proved in this last borehole is 10 feet 7 inches.

To sum up the evidence: The presence of coal has been proved over a small area which contains probably about 25,000 tons, of which quantity it is as well not to assume that more than one-half can be profitably extracted, owing to the great admixture of shale. It is probable that the seam may be traced for some distance to the south, because the amount of coal, so far as is known, increases in that direction, but it is hardly likely that a seam which thins out and disappears within so short a distance as 200 yards can be depended upon for any long distance. The quality has not yet been accurately ascertained. If on cutting into the coal it is found to burn fairly, a considerable quantity may be extracted, far more than sufficient to well re-pay the expenditure incurred in boring; but, except in the improbable case of the coal continuing for a distance to the south and east, no permanent supply can be depended upon from this locality. The great admixture of shale and the variation in the seam will render it necessary to mine a large quantity of useless rock, and this will increase the cost of the coal, but in a country where no other supply exists, this alone should not prevent the coal being worked.

The locality is most favorable. The river is within half a mile when full, and about a mile during the dry season, and so soon as the coast canals are completed, it will be in constant water communication with Madras.

In conclusion, I would recommend that the remainder of this small tract of coal-bearing beds be thoroughly explored, as, even if no extensive seam of coal be found, a considerable quantity of useful fuel might be discovered, which would be available on an emergency. North of the river a borehole should be put down below the high bank at Rajgúmpa, at a spot where conglomerate is seen in the river bed, in order to test if the coal continues so far to the south-east. A boring might also be made where sandstone occurs in the stream north-east of Gaoriopeta, and another south of the large tank near Egerpeta, west of Tátpali, and one of the boreholes already sunk, for perference No. 1, should be continued until the metamorphics or Tálchirs are reached. There is little chance of good from any further exploration on the north bank. On the south or right side of the river, the series of borings planned west of Madaváram should be carried out. The small breaks in the section near Amraváram might be explored in the same manner, and especially a spot above the mouth

of the large stream which enters the G dávari just above the village, as small fragments of shale and coal are hereabouts scattered along the edge of the river, and may indicate a coal seam below the sandstone exposed at a place where there are some bushes beneath the bank.

If all endeavours to find a permanent coal-supply in this locality fail, an eventuality for which we must be prepared, the next chance is near Lingálá. Here I consider further exploration in British territory as almost hopeless, the Tálchirs must crop out everywhere below the mouth of the Tál close to the river bank, so that the Damúdas are confined, or nearly so, to the bed of the river and the country on the opposite side. Above the mouth of the Tál for some distance it is simply impossible to say what exists, for the whole country is covered with thick alluvium as far as Cherla, where the only rocks that are known to occur appear to me undoubtedly Kámthis, and all the Damúdas and Tálchirs are overlapped. The only plan by which any good can be done is an exploration of all the breaks in the section exposed above the top of the Tálchirs at Sangaram on the right bank of the river in the same manner as I have recommended near Madávaram. The dip varies from 10° to about 20°, and the depth to which the boring in each case must be sunk will be found by multiplying the length of the break by the tangent of the angle of dip.

I am under great obligation to Mr. Vanstavern for the very thorough manner in which he has aided me and for his readiness to carry out every suggestion I made. Mr. Heppel's services in charge of the boreholes were invaluable; it is mainly due to his thorough knowledge of boring and to his hard work, in an intensely hot season and despite many difficulties, that so much has been accomplished in a short time.

Temporary appointment of Dr. Day as Inspector General of Fisheries in India.

Extract from the Proceedings of the Government of India in the Department of Agriculture, Revenue, and Commerce,—No. 5, dated Simla, the 20th July 1871.

READ again—

The Resolution of the Government of India in the Public Works Department, Nos. 79-89 I, dated the 11th March 1869, ordering the employment of Surgeon F. Day, of the Madras Medical Service, on the special duty of making a comprehensive enquiry into the fish and fisheries of India.

Read also—

The despatch from the Secretary of State, No. 53, dated the 17th June 1869, approving of the Proceedings of the Government of India.

OBSERVATIONS.—The objects sought to be attained by the special employment of Dr. Day are thus set forth in the Resolution cited above :

"4. The Governor General in Council is of opinion that great scientific advantage will be secured by entrusting the examination of all the waters of India to a single naturalist so well able to deal with his subject as Dr. Day is believed to be. His Excellency in Council considers that this is the only way in which a precise knowledge of the facts relating to the inland and sea fisheries of India is likely to be gained, and even if no very great practical immediate good accrues from Dr. Day's enquiries, they will afford him opportunities of completing his scientific knowledge of the fish of India, in which it appears most proper that he should be aided as far as is possible.

"5. His Excellency in Council believes that the time has come when the great importance of obtaining exact information as to the natural capabilities of the land and water contained in this vast empire, and of stimulating the practical application of those capabilities to useful ends, is beginning to be more clearly and fully appreciated. All success in what are known as the useful arts of life depends on the skilful adaptation to our purposes and operations of the forces of nature. In no part of the earth is the energy of nature more great than in India, and no country affords a more hopeful field for extending its productive resources. The utilization to the utmost of the fisheries of the rivers and the coasts as sources of food to the population, the adoption of rules to prevent injurious over-fishing where that is found to occur, the removal of natural or artifical obstacles to the free reproduction of fish in the rivers, the regulation of the fishing in Government canals and other waters, the facilitating of the salting and curing of fish, and of the extraction of fish oil and isinglass, are, with other matters which need not be specially mentioned, of evident great public importance, and demand the attention of the Government as being likely, under suitable arrangements, to add largely to the resources both of the people and the State.

"6. The Governor General in Council will, therefore, request the Madras Government to place the services of Dr. Day at the temporary disposal of the Government of India to enable him to continue his enquiries on the comprehensive system which has been explained, and to submit a report on any matters relating to the utilization of the natural resources

of the rivers and seas of India, which seem to him to deserve the attention of the Government."

2. During the period of his special employment, which had commenced with special reference to the Madras fisheries before the orders quoted, Dr. Day has visited various parts of India and has submitted reports upon—

(1) the fresh-water fisheries of the Rivers Cauvery or Coleroon, Kistna, and Godavery;

(2) the fresh-water and sea fisheries of Orissa and the Midnapore District;

(3) the fresh-water and sea fisheries of British Burmah; and

(4) the fish-supply of Port Blair.

3. Dr. Day has also inspected the fisheries of the Punjab and the North-Western Provinces. The Governor General in Council understands that his report upon the former has been completed and will be submitted immediately, and that the report upon the North-Western Provinces will be submitted to the Local Government by the 15th of September. His Excellency in Council also understands that, by the commencement of the next cold weather, Dr. Day will have completed a description of the fresh-water fisheries of India, with remarks on fishes, forming a handy-book on the subject well adapted for the use of district officers throughout the country.

4. In order to carry into effect the programme sketched out in the orders of March 1869, the Governor General in Council considers that the following plan of operations should be adopted. During the approaching cold season, Dr. Day will examine the fisheries, sea and inland, of Sindh and the Bombay Presidency, and the south-western Districts of the Presidency of Madras, as well as the pearl banks of Tuticorin.

5. During the summer of 1872-73 Dr. Day will compile a general review of the sea and inland fisheries of British India (excluding only Assam and Bengal east of the Brahmaputra), based on his own observations and reports and on the information elicited by the questions circulated at his suggestion by the various Local Governments and Administrations to their executive subordinates. Dr. Day will also prepare an abstract of all laws and rules in force in the United Kingdom, and, as far as may be possible, in other countries also, for the protection and regulation of fisheries, which may seem to him susceptible of beneficial application to the whole or any part of British India and Burmah. He will, during this period, collect, in an easily accessible form, all information necessary to enable the Government of India to decide what legislative action is desirable and necessary for the preservation and improvement of Indian fisheries.

6. During the cold season of 1872-73 Dr. Day will examine and report upon the fisheries of Assam and Eastern Bengal generally, and, this done, Dr. Day will, for some little time at any rate, be fully employed with questions which will necessarily at first arise out of the practical enforcement of any law which the Government of India may find it necessary to enact for the regulation of fisheries, and any rules which the Local Governments and Administrations may consider advisable to promulgate with the sanction of the Government of India, to give effect to such law.

7. It is obvious that a considerable time will elapse before this programme is fully carried out, and Dr. Day can return to his substantive appointment, which is that of Medical Storekeeper at Madras. It is understood that the officer acting for Dr. Day draws the full pay of the appointment.

8. Considering these circumstances, and considering the great importance of retaining the services of an officer so specially qualified as Dr. Day in bringing to a close the labors now in progress, the Governor General in Council resolves to create the temporary appointment of Inspector General of Indian Fisheries, with a salary attached to the office of Rs. 1,500 per mensem, subordinate to this Department, and to appoint Dr. Day to the office.

9. Dr. Day's present salary is Rs. 1,150 per mensem, and his travelling allowances and contingent expenses average Rs. 200 per mensem, exclusive of passage money for sea voyages. In December next Dr. Day will attain the rank of Surgeon-Major, and he would then draw Rs. 1,390 per mensem, with, as above said, about Rs. 200 per mensem for travelling expenses and contingencies. Under the arrangements now proposed, Dr. Day will draw Rs. 1,500 *plus* a travelling allowance of Rs. 5 a day, exclusive (as above) of passage money for sea voyages. The extra expense, therefore, which will be entailed, subsequent to December 1871, by these arrangements, will be Rs. 60 per mensem, during the period for which this temporary appointment is maintained.

ORDER.—Ordered, that a copy of these remarks be forwarded to the Financial Department, with a request for sanction to the increased temporary charges.

(True Extract.)

(Signed) A. O. HUME,

Secretary to the Govt. of India.

Resolution by the Government of India, Financial Department,—No. 2434, dated Simla, the 4th August 1871.

READ—

Extract from the Proceedings of Government in the Department of Agriculture, Revenue, and Commerce, No. 5, dated the 20th July 1871, recommending the appointment, temporarily, subordinate to that Department, of Dr. Day as Inspector General of Indian Fisheries on Rs. 1,500 per mensem, *plus* a travelling allowance of Rs. 5 a day, exclusive of passage money for sea voyages.

RESOLUTION.—The recommendation is sanctioned, subject to confirmation by the Secretary of State, and to re-consideration of the charge in the summer of 1873-74.

ORDER.—Ordered, that the foregoing Resolution be communicated to the Department of Agriculture, Revenue, and Commerce, and the Comptroller General.

Cultivation of Carolina Rice in India.

PRÉCIS.

THE following is a précis of the reports received on the result of the experimental cultivation in 1868 of Carolina rice seed received from England, and of acclimatized seed received from Madras.

Bengal.—The seed reached the interior much too late. Failures attributed to this cause. The results of successful experiments are shown below. Experiment will be worth repeating if seed can be distributed not later than January next.

Cantonment of Dum-Dum near Calcutta.—Two and half seers of each kind, Carolina and acclimatized, were put into seed beds. All germinated freely, a small quantity only being carried away by birds. When about a foot high, the young plants were transplanted five or six in a bunch. The imported seed was transplanted into a piece of ground measuring 7 cottahs, and the acclimatized on a piece 8½ cottahs. The yield of paddy was,—imported, 1 maund 10 seers, acclimatized, 3 maunds, 7 seers;—of straw, imported, 13 puns; acclimatized, 2 kahuns and 2 puns. The striking difference in the yield of the acclimatized over the imported is attributed to the comparative pureness of the soil in which the former was transplanted, and to the inequalities in the two plots of ground, the acclimatized having the advantage over the other in this respect. Both sorts are unaffected by bad whether. After the gale on the 24th October 1868, the country crop was lying in heaps, but both imported and acclimatized remained unaffected.

The result of the paddy husked was as follows:

		Seers.	Chittacks.	
5 seers	imported gave	3	9	of good rice.
5 „	acclimatized „	3	1½	„

The country produce at the utmost yields only 50 per cent. of rice.

Kamroop, in Assam.—One and-a-half seers sown in the Gowhatty Jail Garden yielded 27½ seers paddy. A larger yield would have resulted had the seed been sown earlier.

Howrah, in Burdwan.—Some acclimatized Carolina paddy sown by Mr. John Stalkartt in his own garden, grew remarkably well.

Cuttack.—The out-turn has varied considerably from 4 to 48 times the quantity of seed sown. Where great attention was paid it yielded well, and where little or no care was bestowed, it generally yielded fairly. On the whole the trial was a success, and the people in general are well pleased with the seed.

Pooree.—In one case all the seed failed. In a second, all germinated, but the plants died on being transplanted. In a third, only seven stalks came up. These results attributed to bad quality of seed.

Of seed given to the Reverend Mr. Miller, the yield from one seer was nine.

The Commissioner thinks that the result of these experiments is to show that with good seed the grain is of fair yield and good quality, suited to sarud lands.

Lohardugga, in Chota Nagpore.—Results of Mr. Herzog's experiments.—One seer was sown in low land, and the same quantity of country seed was also sown near the same spot and on similar land. Neither germinated, owing probably to the lateness of the season.

On the same day another seer of Carolina was sown on high land covering an area of 357 square yards, and on a piece of similar land (370 square yards) the same quantity of country paddy was sown. The yield of the former was 8, and of the latter 31, seers.

Eight seers of Carolina were sown on high land and transplanted into about a beegah of ordinary dhan field. The yield was only 23 seers.

Results of Baboo Deo Narain's experiment.—Three seers were sown in a bed in July, and in about four days the whole had sprung up. They were eventually transplanted into one cottah of deep rice land. The soil was what is called "Balsoondee," or loam mixed with sand, which is considered the very best description of rice land in Palamow. The ear formed in October, ripened in November, and was cut in December. The yield was 24 pucka seers, which is considered a very large yield. It is considered in every way superior to the Native rice. The plant is a fine strong healthy one, with broad and very bright green leaves. It suffered a little from want of rain, but not to the same extent as the country sowings did. The grain does not appear to have deteriorated from acclimatization. The result of the experiment would have been more satisfactory had the sowing taken place in June. The Carolina seed is well adapted to the deep rice lands of the country, and is superior in many respects to the country grain.

Soonderbuns—The Carolina seed has been cultivated most successfully in Mr. O'Brien Smith's grant, and in one of the Port Canning Company's grants.

Several Native zemindars are willing to cultivate the seed experimentally in their estates.

North-Western Provinces.—The results of the experimental sowings in these Provinces are shown in the following statement. The Lieutenant-Governor observes that, in such a year of drought (1868), success could scarcely be looked for, but he hopes that the conditions of season will be more favorable this year for the experiments which are still to be continued :

Result of the experimental sowing of Carolina paddy in the North-Western Provinces in 1868.

Division.	District and Pergunnah.	By whom sown.	Quantity of seed sown and in how much land.	Weight of yield.	REMARKS.
MEERUT.	Moozufferneggur ...	.....	.....	.....	The seed arrived too late in 1868, and has been carefully stored by the district officers for experiment in 1869.
	Allygurh ...	.....	.....	.....	
	Dehra Doon ...	.....	.....	.....	
	Saharunpore ...	.....	.....	.....	
ROHILCUND.	Bijnour.				
	Moradabad.				
	Bareilly.				
	Shahjehanpore.				
	Turrai.				
ALLAHABAD.	Banda.				
	Pergunnah Tirohan ...	.....	1 seer in 3 biswas of Oosur land manured and close to a tank.	.....	In about ten days the seed germinated and appeared above ground; the plants grew six inches high and then withered away.
	" Ougassee ...	.....	¾ seer in 2 biswas of purwa land	.....	Germinated and appeared above ground in six days, was irrigated, grew 1½ feet and then dried up.
	" Seondah ...	.....	½ seer in one biswa of Segon ...	.....	Germinated and appeared in eight days, was irrigated, grew 2 feet, came into ear and was then grazed at night by cattle.
	" Kumassiee ...	.....	¾ seer in Segon land ...	.....	Did not germinate.
	" Chiboo ...	.....	½ seer in 1½ biswas of Dandi land in the vicinity of a village.	.....	Germinated and appeared in eight days and grew two feet after being irrigated, but gave no produce.
	" Bidousa ...	.....	½ seer in two villages in Gond land.	.....	Germinated and appeared in eight days, grew one foot and withered away.
					The Collector attributes the failure of the experiment in all the above cases (except Seondah) to the absence of rain from 17th June to 20th July 1868.
	Cawnpore ...	.....	.....	.....	Owing to the failure of the rains and the late arrival of the seed, the experiment was not tried.
	Humeerpore ...	.....	.....	.....	
	Futtehpore Sudder Station ...	.....	.....	.....	The plants grew up luxuriantly, but owing to the failure of rain most of the young plants perished. A few of those that survived came into ear, but produced no grain. This is attributed either to insufficient irrigation, or to an insect which attacked the ear.
	Allahabad ...	Mr. R. J. Carbery ...	.....	.....	The experiment proved a total failure. The seed was sown late and had 41 days drought to contend with, and, though irrigated, did not come on well. The plants had not been long transplanted when very heavy rain fell between the 13th and 18th September 1868, which laid them all under water, and they could not recover from this severe shock sufficiently to form seed.

Division.	District and Pergunnah.	By whom sown.	Quantity of seed sown and in how much land.	Weight of yield.	REMARKS.
ALLAHABAD, *contd.*	Jounpore, village of Jugdeespore	Tehseeldar ...	10 seers ...	.....	Owing to absence of rain the plant did not thrive, and in September the excessive rain so retarded its growth that the experiment was attended with no result.
BENARES.	Gorruckpore ...	Ahmud Ali Shah ...	1 seer ...	1 seer ...	The Collector states that the tehseeldars report very unfavourably of the seed. He attributes this to no rain having fallen, and the seed consequently not germinating.
	Bustee ...	.....	.....	.....	Mr. Bridgman's report goes to show that Carolina rice is superior in produce to country rice, in the proportion of nearly 4 to 3; seed was also sown in the Bansee and Dumuriagunge Tehseels, both as Bhadace and Ughanee with varying results. In Bansee that produced as dhan dried up, and that sown as jurhun yielded only its own seed. In Domuriagunge it totally failed. In Bustee that sown as the earlier rice crop yielded eight-fold, while that sown as the latter rice crop yielded only three-fold.
	Azimgurh ...	Mr. Dunne ...	2 seers in 3 biswas ...	24 seers ...	Mr. Dunne thinks the seed was sown too late, as he observed that 25 or 30 per cent. of the ears had no grain in them when the paddy was cut. The Collector adds that the year was a most unfavourable one for rice cultivation.
	Benares ...	Ghous Khan, Karinda of the Zemindar of Mouzah Murhwa, Pergunnah Sheopore.	7¾ seers in 1 biswa and afterwards transplanted into 8 biswas.	1 maund 30 seers paddy and 5 maunds straw.	A crop from country seed sown in a similar quantity of land and close to the land upon which the Carolina crop was grown, gave an yield of 1 maund 28 seers of paddy and 6 maunds of straw. The Collector states that this year's experiment cannot be accepted as a fair one, as the seed was sown late and the fall of rain was much below the average.
	Mirzapore ...	.....	.....	.....	The Collectors' report that the experiment was a complete failure owing to want of rain.
	Ghazeepore ...	.....	.....	.....	

W. C. PLOWDEN,
Secretary.

Punjab.—The seed arrived too late for sowing last year, but it was kept for trial this season in the Districts of Kangra, Hoshiarpoor, Mooltan, Peshawur, Umritsur, and Lahore, as the best adapted for the purpose.

Oudh.—The seed was distributed on the 10th July 1868. Each Deputy Commissioner received about 13 seers. The following are the results of the trials in each District :

Oonao, Baraich, Kheree, Rai Bareilly.—All experiments entirely failed.

Lucknow.—In some places the seed did not germinate. In others the plants did not come to perfection.

Barabunkee.—Seeds germinated in all cases, but only in one case were two seers of produce collected. In all others the plants dried up.

Fyzabad.—In Dostpore some seed was produced and kept for further experiments. In the Jail Garden a small quantity of seed was also obtained.

Gondah.—Produce next to nothing owing to dry weather. The ordinary rice crop of the District was not so bad.

Seetapore.—The seeds germinated in all cases, but plants dried up though duly irrigated.

Hurdui.—In Sandeela only a small quantity of paddy was produced. It was turned into rice which was pronounced to be "of very fine quality."

Pertabgurh.—No report received.

Sultanpore.—Thirteen seers were sown in a bed and afterwards transplanted and carefully irrigated. The produce was 4 pucca maunds : a sample of the seed produced was declared to be "good and full." All the transplanted *country* paddy failed entirely.

On these reports Dr. Bonavia, Superintendent, Department of Science, Oudh, remarks that the seed arrived in first rate condition as it germinated in many instances; but that sufficient care was not devoted to the experiment, though he also admits that the seed arrived somewhat late, and that the season was unfavorable for trying experiments with paddy. He thinks that the result of the experiment in Sultanpore proves what intelligence and care could effect, notwithstanding the disadvantages above-mentioned.

Central Provinces.—The seed was received in May and distributed at once. It was received in good time, but the season was a very unfavorable one owing to the absence of the usual rains. The results of the experiments in these Provinces are shown below :

Raepore.—The experiment was tried by Mr. Duncan Sinclair, Assistant Settlement Officer.

On the 11th June, 107 Rupees' weight of seed was sown. It sprung up on the 15th very vigorously, and required no water till 18th, when it was watered five times from the well and was, on 23rd July after a heavy shower, transplanted into ground, 7½ poles area, which was prepared for the purpose with a large proportion of black loam. Two plants were put together at distances of 5 inches apart. No rain fell up to 2nd August, hence well water was given. The plants wore a healthy appearance and took root. Subsequent to this a heavy shower fell, and the plants made rapid progress in their growth. Very little rain during September and none in October : irrigation was resorted to largely.

The produce of the 7½ poles of land amounted to 40 seers of Rs. 80 or 30-fold. The state of the season considered, this result was extraordinary. The produce of the best qualities of Native seed is 15 and 20-fold in good soil with an average fall of rain; that of the inferior 20 and 25-fold, an acre of land is sown by the Natives with Rs. 3,600 weight of seed; this gives per pole Rs. 22½ weight, whereas Rs. 15 weight of Carolina sufficed for the same quantity of land. A saving of 15 seers per acre would be effected by the use of the Carolina seed.

The Carolina seed throws forth a strong stem and a number of offshoots (as many as 11 healthy ones were noticed), each of which produce an ear as long as the main stem. The rice is coarse, but it cooks well, *i. e.*, has a good appearance after boiling. It has no scent, which is considered a great disqualification by the Natives. The country rice is considered by them superior in quality. Many malgoozars have begged for seed nevertheless.

Nagpore.—In the Ramtek Tehseel the experiment failed entirely, as the seed was sown in unirrigated lands and dried up.

In the Omrair Tehseel the seed germinated well, and, the unfavorable season considered, yielded a fair crop. The long and stiff root interferes with the operation of transplanting. The crop is difficult to thresh out.

Chanda.—Various places were chosen in the rice-growing tracts of the Wurdah and the Weiwgunga Valleys and of the eastern table land; but the season was unfavorable. The general failure of rain, which so destroyed the indigenous kinds, told with equal severity on the Carolina rice, and in only one instance did the experiment have fair play. In this instance the return was nearly 22-fold on land which, when planted with the indigenous varieties,

usually gave but 10-fold. From the trials made with Carolina seed, the following conclusions are arrived at:

1st.—It requires less water than the native kinds.
2nd.—It benefits by liberal manuring.
3rd.—It ripens earlier than the native kinds.
4th.—Gives a larger return of paddy.
5th.—And the paddy yields a larger proportion of cleaned rice.
6th.—Its straw is coarser than the native kinds, and is less liked as fodder by cattle.
7th.—In flavor the rice is inferior to that of the better native sorts.
8th.—It is fitted to supersede the coarser kinds of native rice.

Bhundara.—The results were not very favorable.

British Burmah.—The results of the experiments made in this Province are noted below. The Chief Commissioner observes that "the results are, on the whole, not so satisfactory as could have been wished, but it has been proved that with proper care the paddy will grow well in this Province." The cyclone of 13th November 1868 marred the experiment in a great measure.

Arracan Division, Jail Garden at Akyab.—Ten seers of seed were sown on 7th July, and a portion transplanted in due course. The soil was all sand, slightly manured. The transplanted plot did not do so well as the others. The whole of the ground was estimated to contain about 50 or 60 baskets prior to the storm of 13th November. The plants grew to about 3 feet. The seed should have been sown at least a month earlier. The plants had to be irrigated to a great extent owing to the poor nature of the soil. During the early part of the season, the young plants were stolen to a very considerable extent. The out-turn was 17 baskets of 12 seers each.

Akyab District.—The largest out-turn in this District was in the Shin Gyan Circle, where one cultivator obtained 50 baskets from 18 seers of seed. The paddy was sown in August and reaped in November, but not transplanted. The soil was better manured than is usually the case. It was alluvial: situation not very low.

In Tha Mee Hla Circle also 21 baskets were obtained from 9½ seers of seed. The soil used was the usual alluvial soil. The yield was considered very superior.

In most of the other cases, very poor returns were obtained owing to the seed having been sown in low-land and to the lateness of the season and consequent heavy rains. The cyclone also did much injury.

The Deputy Commissioner thinks that the best time for sowing is September. The grain is described as larger than the country rice, and the straw much thicker. With the Arracanese for these qualities it does not find much favor, but the Bengallees do not object to them. The yield of the country paddy is frequently 130 and 140 baskets the acre.

Dr. Mountjoy, Civil Surgeon of Akyab, reports to the following effect:

The paddy will grow well and yield plentifully in Akyab. It requires rather dry ground; cannot bear much water at its roots. In a field some of this paddy appeared to be dying, yet it was restored to health by cutting through the bund and letting off the water. It ripens quickly within three months. It ought to be transplanted to increase the yield. It is strong on the stalk. The stalks are much more numerous than from native grain. It should be sown early in the season. Nacrensee takes seven months to ripen, Carolina only three; therefore an acre of land would produce two crops of Carolina in the same time it takes to produce one crop of Nacrensee. Such a result might be obtained in Arracan (where the rains are long continued) without the aid of irrigation. In treading out Carolina is more adherent than the indigenous grains.

Pegu Division.—The experiment tried by the Society has been, on the whole, very satisfactory. The seed (one basket = 1 bushel) was sown broadcast on 26th July, transplanted 20th August, and reaped 25th November and 10th December. Soil, bluish clay with an admixture of sand. The out-turn was 23 baskets of cleaned paddy. The seed thus obtained has in no way deteriorated.

Garden of the Agri-Horticultural Society, Rangoon.

The results of the sowings in the several Districts of this Division are shown in the following Table:

District.	Seed sown.		Out-turn.	
	Bushels.	Pyees.	Bushels.	Pyees.
Rangoon	13	11	25	8
Bassein	14	2½	40	2½
Myanoung	13	11½	57	9
Prome	11	6½	66	11
Toungboo	6	5½	72	9

The results of the sowing in the Rangoon District were not favorable owing to the seed having been sown too early and been inundated; but the cultivators generally approve of it, and regard it as similar to the Kouk Yin paddy of Burmah.

The experiment was also unsuccessful in the Bassein District owing to want of proper care and attention on the part of the cultivators. The people, however, condemned the seed as unprofitable, because the yielding capabilities of the grain were proved to be far inferior to that of the grain of the country.

Myanoung.—The failure of the experiment in the Myanoung District was owing not to any defect in the seed itself, nor to the soil, nor to the mode of cultivation, but to one or other of the following causes: (1) inundation, (2) scorching of the seed planted on high land owing to want of rain early in the season, and (3) too much water in the fields.

The cultivators say that the Carolina does not bear transplanting well owing to its long tenacious roots; that the paddy is very hard and adheres closely to the stalk; that the cattle tread it out with difficulty, and that the rice is very hard, but the straw is long and fine, and the cattle eat it with avidity. It is also strong and better able to resist rain and wind than the native paddy. With a little care in cultivation, it will succeed very well and give a greater return than most kinds of the native paddy: the seed is large, and its hardness would prove a valuable quality for purposes of export.

Prome.—The result of the experiment in the Prome District has been a comparative success. While July is regarded as rather early for sowing in Rangoon, it is considered late for Prome and Thayetmyo. The out-turn of one planting (at Poungday) was 40 times the amount sown. Of other paddy the out-turn is generally 20 to 24 times the amount sown. In the Sub-Division of Thayetmyo, a great deal of the seed sown was destroyed in some cases from want of water, and in others from inundation.

On the whole, the paddy is favorably thought of; the chief objections to it are thickness of stalk and difficulty of detaching grain, owing to which a great deal more trouble is incurred in transplanting than with the ordinary paddy.

Tounghoo.—The experiment is described by the Deputy Commissioner as being only "slightly successful." Yet the out-turn is proportionately the largest in Tounghoo District of any. The mode of cultivation adopted was exactly similar to that of the indigenous paddy. Different kinds of soil were also tested. The paddy sown on high ground gave the greatest yield. The transplanted paddy also gave the best out-turn. The yield in black loam soil was the lowest. The people are very sanguine that the next experiment will be much more satisfactory.

Tenasserim Division.—The out-turn was bad owing to excessive rain-fall and severe inundations during the rains. The seed was planted in the Districts of Amherst, Tavoy, and Mergui in July, and in the Shewgyeen District in August and September. With only three or four exceptions it was sown broadcast. The best results were obtained in the Shewgyeen and Amherst Districts, but particularly in the former, where 48 to 50 times the quantity sown were produced. The superiority both of the yield and of the grain is acknowledged. It grows to maturity a month earlier than the Burman paddy, taking only three months to be ready for reaping. The straw is thicker and coarser, the ears longer and fuller, and three times as heavy as the ordinary indigenous paddy. The roots strike deeper into the ground, thereby offering more resistance to high winds and heavy rains. The seed is unsuited for cultivation in low inundated lands. It thrives better on high land, where there is not more than two or three inches of water during the rains, or say a foot above the ordinary level of the paddy plains. Referring to some paddy which had been planted "in the best paddy land," the Assistant Commissioner of Thatone (Martaban Sub-Division, Amherst District) writes—"The plants were the finest paddy plants I think I have ever seen, and the Karens were in raptures about it." And, again, referring to some paddy sown on high ground, *i. e.*, about a foot above the ordinary level of the plain near the base of the hills, he observes—"This has succeeded splendidly." Indeed, I think from the little I have seen that such a situation suits this paddy better than our ordinary paddy land in this sub-division.

The great tenaciousness of the Carolina paddy to its husk, rendering threshing difficult, is looked upon as a serious objection. Another objection is that, unlike the indigenous rice, the Carolina is hard to boil, and is not agglutinous. This, in the opinion of "an intelligent Tounghoo cultivator," renders it unfit for human consumption; but is also admitted that "the taste is good, and it is more satisfying than our rice."

The report from the Mergui District was as follows: "Carolina paddy was sown and reaped at the same time with indigenous paddy. The plants were weaker than the country paddy plants. The ear was shorter and contained less grain than country paddy. The indigenous produced five or six shoots for every grain, while the Carolina paddy only produced two or three shoots, and the produce of grain less by 75 per cent. The roots of the plants were not so deeply imbedded as the roots of the indigenous paddy, hence quality of the Carolina paddy was inferior to that of the country paddy. Every cultivator has condemned the paddy. The paddy was grown in ordinary rice land."

Précis of the results of the cultivation of Carolina Paddy in India in 1869 *and* 1870.

Revenue Proceedings, 16th October 1869, Nos. 45 to 54.

* For a printed *precis* of these, see K. W. of the Proceedings cited.

Revenue despatch from Secretary of State, No. 96, dated 14th December 1869.

Revenue Proceedings, 29th January 1870, Nos. 14 to 17.

From Bengal Government, No. 1807, dated 23rd June 1870.

Public Proceedings, 26th March 1870, No. 135.

In forwarding to the Secretary of State the reports* furnished by the local authorities in the Bengal Presidency on the results of the experimental cultivation of Carolina rice in this country during 1868, the Government of India, in its despatch No. 67, dated 18th October 1869, remarked that, owing to the late receipt of seed from England and the unfavorable nature of the season, the experiment could hardly be considered to have had fair play. It was therefore determined to wait the result of the further trials which were being made with acclimatized seed, as also the result of the trials that might be made with the 30 barrels of Carolina paddy seed which the Home Government had been asked to supply. This consignment was, on its receipt, made over to the Government of Bengal, for which it was intended; and that Government made the necessary distribution of the same. The Lieutenant-Governor was at the same time requested to make a trial of the seed with sewage water in the experimental farm at the Salt Water Lakes A small quantity of the seed was also sent direct to the Chairman of the Justices of the Peace for the Town of Calcutta for the same purpose.

Reports from the authorities concerned as to the further cultivation of Carolina rice have now been received, and the following is a summary thereof:

NORTH-WESTERN PROVINCES.

No. 298A, dated 2nd April 1870.

Dehra Doon.
Cawnpore.
Humeerpore.
Pergunnahs Ougasee, Seonda, and Budonsa, in the Banda District.
Goruckpore.
Azimghur.

During 1869 the experiment was a failure from some cause or other, at the places noted on the margin, in the North-Western Provinces.

In Pergunnah Tirohan, in the District of Banda, one seer of seed gave an outturn of five seers. It was said that all the seeds did not germinate, and the crop was not irrigated; while half a seer of country seed, sown on similar land and under similar circumstances, gave an out-turn of ten seers.

Benares.—Ten biswas of land sown with Carolina paddy seed gave an out-turn of 1 maund 20 seers, while another ten biswas sown in juxtaposition with country seed produced 3 maunds 20 seers. The straw of the two kinds was equal. The flavour was reported to be good; but the

leaves of the plants, owing to their being more tender, were more injured by birds and insects, than was the case with the country paddy.

Mozuffernuggur.—Thirteen seers of Carolina seed were sown by one Lalla Buldeo Suhoy. After seven waterings the seedlings were transplanted into eight bighas of first class manured land, and there watered seven times again. The stalk reached 3 feet in height. The produce was 31 maunds 27 seers. In comparison with the sorts of *moonjee* grain in the neighbourhood, there was neither loss nor gain, the outturn being the same on an average. The Board of Revenue authorized the Collector to purchase the seed from Buldeo Suhoy for distribution to other landholders for experiment in 1870.

Saharunpur.—The Collector reported that, while the experiment failed in certain quarters, an intelligent agriculturist, named Kour Sen, of Hareti, a village about 3½ miles from Saharunpur, succeeded beyond expectation. The outturn of his cultivation was 36 maunds an acre, against the average outturn of 15 maunds per acre, of the best kind of Native rice grown in first class irrigated lands. Mr. Webster said that he saw the crop standing on the 1st or 2nd of October, and was struck with the great contrast it presented to the Native rice growing round it. He continued that "it was more than double in length and thickness of stalk, and the heads appeared to be many times larger than those of the Native plant, which had suffered considerably from the late heavy rains and high winds, some of it being beaten down flat to the ground, and a good deal of it injured more or less, while the Carolina rice plants stood up firm and strong, and, as the zemindar remarked, seemed to flourish the more the more it rained." His report was concluded with the remarks cited below:

"What Kour Sen has done however, sufficiently proves the great superiority of the Carolina rice to the Native plant, in vigour, amount of produce, and capability of resisting the effects of storms and heavy rains; its straw is also so far superior to that of the common rice that, when known, it will be sought after for thatching and other purposes, while the common kind is useless, or at best forms part of the fodder for buffaloe.

"The rice as food is considered to be inferior to the best Native produce, and would sell somewhat cheaper in the market, but the extraordinary amount of its yield renders it, in my opinion, a grain the cultivation of which should be promoted and encouraged as much as possible in the rice-producing tracts of this country."

No. 698A, dated 19th May 1870.

The Government of the North-Western Provinces also submitted the following report regarding the experimental cultivation of Carolina rice in the Rohilkund Division :

Bareilly.—The seed was distributed for experimental sowing to the Civil Surgeon and to the Tehsildars of Phillibheet and Buheree.

The trial made by Dr. Corbyn failed, as the seeds did not germinate owing to their being old and moth-eaten.

At *Phillibheet*, $1\frac{3}{4}$ seers of seed were sown in $9\frac{1}{2}$ biswas of land in the government garden. All the seeds germinated ; the plants were watered once and grew to a height of $1\frac{1}{8}$ yards. The ears were splendid and very full. The yield was 25 seers in husk and 14 seers in a cleaned state. This was about the average produce of coarse rices in the locality ; and the Tehsildar thought that, if the garden had been less shady, the yield would have been greater.

At *Buheree* the result was not so successful. The seed was made over to two zemindars for cultivation,—half seer to one and ten chittacks to the other ; and the outturn was five seers and four seers respectively. The produce was inferior to the seed sown. The latter was of a red color, while the former was of a whitish color, and was lighter in weight to the extent of about 20 per cent.

Terai Pergunnahs.—Twelve seers of seed were sown in 2 bighas of land in Burakhera, Pergunnah Guderpoor, and the outturn was 3 maunds 8 seers. The result was said to be satisfactory, although the seed was not sufficient for the area sown, and the field was much injured by the late fall of rain. Country rices of a similar description gave a much larger outturn, but under similar circumstances they would not have given the same as the Carolina rice did. It was considered to be superior in quality to the finest Terai rice.

In the Moradabad District, the result was not very satisfactory, Surjoonuggur being the only village in which $1\frac{1}{4}$ seers of seed sown in half a bigha of land yielded seven seers of rice.

In Shajehanpoor the trial was a total failure.

CENTRAL PROVINCES.
No. 1631—126, dated 21st June 1870.

The experiments were tried in four Districts,—Nagpore, Chunda, Bhundara, and Raepore.

Nagpore.—In the opinion of the Deputy Commissioner the Carolina rice was inferior in flavour to the best country kinds, and the outturn was not more than that of the latter. No specific result of the cultivation was reported.

Bhundara.—The Deputy Commissioner, without showing any specific result, reported that the large size of the grain and the productive nature of the yield, when properly cultivated under favorable circumstances, rendered the Carolina rice a very desirable grain for cultivation. "The stalks of the crops are so stiff and strong that, even when they attain a good height, they stand upright with the ears on them, and ordinarily high winds do not shake off the grain from the ears into the moist earth below."

Chanda.—In this District, the experiments did not result very favorably. The yield of the Carolina rice was not more than that of the country grain, if so much; and the Natives unanimously pronounced it insipid. But the superiority of the former over the latter was said to consist in the peculiarities noticed by the Deputy Commissioner of Bhundara.

Raepore.—Mr. Sinclair, who was in charge of the rice cultivation in this District, tried the experiments in two fields in two different ways. In the one, the cultivation was carried on in the same method as obtained in America; and in the other, in the style prevalent in Chattisgarh. In the first field, the average height attained by the paddy was five feet, the stalks being as thick as one-fifth of an inch. Each plant had on an average twelve shoots, and each shoot bore an ear. The ears averaged in length six inches, and the yield was 590 seers of paddy. The second field sown with three seers of seed produced 48 seers of rice. The height of the paddy in this field was said to be "3½ feet, and the shoots no more than six or seven per seed; the straw was inferior, and the ears about five inches in length, and not half as prolific as the transplanted beds."

From the above results Mr. Sinclair was convinced that to yield a good crop, Carolina seed required the precautions

1st.—The soil must be of loose clay and sand mixed.
2nd.—It requires manuring.
3rd.—It must be clear of weeds when the plants are put down.
4th.—Transplantation is the most satisfactory process.
5th.—The seed for transplantation must not be thrown in too thick, or the plants get long and weak, and take a long time after transplantation to acquire vigour.
6th.—The plants must be put down eight inches apart.
7th.—After transplanting there must not be too much water in the field; in fact, it must be kept as a mere puddle until the plants erect themselves, and then water may be let on or retained in the field sufficiently to cover all but two inches of the tufts; and after the plants are one foot high, and well in the soil, the more water the better.
8th.—Low-lying grounds are the best.

BRITISH BURMAH.
No. 238—13, dated 23rd July 1870.

marginally specified. The Chief Commissioner remarked that "altogether the inference to be drawn from the results of this year's experiments would appear to be that, under the ordinary treatment which the Carolina rice may be expected to receive at the hands of the people of this country, the outturn will not exceed that of the country seed,—though, by a careful system of transplanting, a well regulated use of irrigation and a proper system of manure, the yield of the foreign seed may be increased. The foreign plant is hardier than the indigenous one, and yields more straw; but the grain would not appear as yet to be appreciated by the Natives of these Provinces who are very nice and discriminating in their tastes."

From the reports received from this Province, it would appear that, in all the Districts in the Arracan and Pegu Divisions, the experimental cultivation of Carolina rice failed, excepting in the solitary instance of the Meaday Township, Thayetmyo District, in which the seed given to a cultivator, named Moung Pho Tay, yielded 200 per cent., and that entrusted to another, named Moung Tsa, gave a return of five bushels against $\frac{1}{16}$th of a bushel of seed sown. The Assistant Commissioner, Thayetmyo, observed: "The ear is much longer, and yields more than the ordinary paddy; but it is more difficult to remove the grain from the ear, and the cattle take a longer time in treading it out."

PUNJAB.
No. 101, dated 24th February 1871.

The Government of the Punjab submitted a letter from the Financial Commissioner stating that reports on the experimental cultivation of Carolina rice during 1869 were received from fourteen Districts including Chamba, and that three more Districts did not furnish any return. The greatest success attendant upon the trials was realized in Chamba, where the rice was found popular and more seed was wanted for cultivation. The experiments in the Agri-Horticultural Society's Gardens at Lahore were also successful as to the yield, but the quality of the rice was not liked by Natives. In eleven Districts the experiment was a failure owing, in most cases, to the seed having been sown too late.

In 1870 five barrels of the seed were distributed to the several authorities in the Punjab for cultivation; and the result

was that the trials were successful in Chamba, Kangra, and Gúrdaspúr. In Lahore there appeared to be a success, but the quantity of seed sown was so small that it was thought unwise to draw any conclusion.

The Superintendent of Chamba reported that the seed sown in wet ground which was much irrigated failed, but that sown on high ground and moderately watered produced a crop about one-fourth in excess of an average crop of country rice. It was added that the plant had a more substantial and stronger stalk and was less liable to be beaten down by heavy rain or wind than the ordinary rice. The Superintendent also remarked that, when the grain was separated from the husk in the usual country way by pounding it in a mortar, the grain was much bruised and injured, "so much so as to be greatly deteriorated in value."

In Kangra the seed was sown in irrigated *dofasli* land of the best description in the Palum Valley, and the amount of the uncleaned crop was 31 times as much as the seed sown. It was said that the crop would have been larger if the seed had not been received too late to allow of transplanting the rice.

In Gúrdaspúr 24 seers of seed produced 24 maunds of uncleaned rice. The grain was a little larger than the country rice.

The experiments failed in Hushiarpúr, Syalkote, Peshawur, and Huzara.

The Financial Commissioner remarked that even in 1870 the seed was in most cases received too late to allow of the necessary operation of transplanting. At the same time it was clear to him from the reports from Chamba and Kangra that even without transplantation the seed succeeded well. Looking at the results of the two years, 1869 and 1870, that officer concluded that the yield of the grain was considerable, and that the crop ripened, earlier than other kinds of rice, but that the grain was coarse and did not command a high price. The Financial Commissioner therefore considered that it was unsuited for a country where rice was not the staple food for the poorer classes, where it was grown for sale and not for consumption.

MR. S. HOGG.

No. 155, dated 10th February 1871.

The Chairman of the Justices of the Peace for the Town of Calcutta reported that the experimental trial at the Salt

Water Lakes was an accidental failure, but promised to make a further trial next season (1871). He was told to submit his report on its termination.

Home Department, No. 87, dated 22nd February 1871.

BENGAL.

No. 1124, dated 17th April 1871.

The Government of Bengal forwarded a letter from the Officiating Superintendent, Botanical Gardens, from which it would appear that the experimental cultivation of Carolina rice in the reclaimed lands at the Salt Water Lakes had also failed owing to the rise of water. The trials made at the Botanical Gardens met with a similar result.

Bengal No. 2141, dated 21st July 1871.

The Board of Revenue submitted an abstract of the reports received from District Officers and others in the Lower Provinces respecting the results of the experiments made in cultivating the Carolina paddy in this country. This abstract is sub-divided into three parts—

1st. *Successful.*—The places where the results were very satisfactory and encouraging are noted in the margin. In several instances it is stated that the Carolina paddy, as cultivated experimentally, was superior to the country kind.

Debroogürh.	Durrung.
Luckimpore.	Cachar.
Seebsaugor.	24-Pergunnahs.
Lohardugga.	Tipperah.
Burdwan.	Singhboom.
Midnapore.	Moorshedabad.
Pooree.	Soondurbunds.
Jessore.	

Besides Goruckpore in the North-Western Provinces, and Port Blair, respecting which reports were furnished by the Agri-Horticultural Society of India.

2nd. *Doubtful.*—The failures in the experiments* under this head are attributable, in most instances, to special causes, such as excessive rains, inundation, drought, destruction of crops by insects, birds, &c., want of care, and the different processes adopted in the experimental cultivation. In a few instances only the failures are said to have been due specially to the unsuitableness of the soil.

* Made in 61 places.

3rd. *Unsuccessful.*—In this portion of the abstract are shown those cases of trials which met with total failure from causes quite unaccountable. The aggregate of these unsuccessful attempts is 13.

Considering the disadvantages under which a new cultivation laboured, the Lieutenant-Governor thought that the report furnished by the Board of Revenue, as noticed above, was, on the whole, much in favor of the experiment. He observed that, in reality, in certain places and conditions, the Carolina paddy yielded decidedly more than the country paddy, but it laboured under the disadvantage that the grain was not understood, and was

more difficult to husk, and consequently there was no easy market for it. He was at the same time of opinion that these latter disadvantages would diminish in proportion as the cultivation increased.

The Lieutenant-Governor thought that efforts should be made to continue the experiment, but apprehended great difficulties in doing so in Bengal, as the zemindars had no *neez* cultivation, *i. e.*, no farms, and were not readily made amenable to influence, while ryots could not be expected to risk experiments. His Honor remarked—"The chief advantage in Bengal is the presence of so many European gentlemen in the interior, but they do not cultivate rice, or any ordinary staple on a large scale, and only grow samples by way of experiment." It was added that "he very much wishes that Government could make agricultural experiments as has been done in Madras, but the zemindars are so entirely separated from agricultural interests, and consequently the work of improvement is likely to be so difficult, that he abstains from suggesting it, till he can give more attention to the subject than he has hitherto done."

In this Province the experiments failed at the places noted on the margin from a variety of causes.

OUDH.

No. 2675, dated 3rd June 1871.

Lucknow District.
Oonao "
Burabankee "
Fyzabad "
Korasur Thannah, in Barraitch District.
Sitapur District.
Mohumdee, in Kheree District.
Hurdui.
Roy Bareilly.
Sultanpur (partial success).
Partabgarh "

At *Nowparah*, in the Barraitch District, from one *kutcha* bigha three maunds twenty seers were produced, and at Bhingha a bigha produced four maunds.

In *Gola* and *Luckheempore*, Kheree District, the out-turn was good, and, in fact, above the average of the indigenous crops.

In *Sultanpur* two seers sown, yielded sixteen seers in one instance only.

In *Tehseel Puttee*, Pertabghur District, sixteen seers were gathered out of four seers sown.

Dr. Cameron, in submitting the above reports, remarked that the directions given for the cultivation of Carolina paddy had not apparently in any case been attended to, and that probably owing to neglect of the necessary precautions, almost universal failure was the result. On his being asked for the reason for the conclusion he arrived at, he said that one of the directions was to manure the soil well, and in no case was it stated that this was done. Thereupon the Chief Commissioner has proposed to call upon the Deputy Commis-

sioners to report whether the land selected for the experiment was manured or not. This report has been awaited by the Government of India.

CEYLON.

In the *Ceylon Government Gazette* of the 3rd June was published a very interesting report from the Múdaliyár of the Síyané Koralé on the subject of the cultivation of the Carolina paddy. At the beginning of 1868 the Múdaliyár received 1lb weight of the seed from the Government Agent for the Western Province for the purpose of extending its cultivation in his district. The result and the manner in which he proceeded with the charge entrusted to him will be seen from the following extract from his report:

"* * * Accordingly, without loss of time, I got a field prepared and sowed with the said paddy in the beginning of February the same year (1868); and although the drought was very great in that year, I got the field watered from a well, and the paddy which sprung up very well was reaped in May, but I only got a very poor return of two pounds weight of paddy.

"Upon careful examination of the crop, as well as the paddy, I came to the conclusion that this paddy required acclimatization. The paddy was, however, carefully prepared and preserved as seed paddy for the next harvest; and I took the advantage of the Maha harvest to cultivate this paddy jointly with the Maha cultivation, for which purpose I set apart a bed in a tract of paddy field cultivated for the Maha harvest, for the cultivation of Carolina paddy, prepared the same, and sowed therein the above two pounds weight of Carolina seed paddy on the 2nd October 1868. Three months after the Maha paddy was sown, and when the Maha paddy was being reaped, the Carolina paddy was also fit for reaping; and when reaped in January 1869, the crop amounted to three pecks of paddy; and plants having subsequently sprung out from the stalks left after the first reaping, also produced a second crop amounting to a quarter of a bushel, making in all one bushel, which one bushel was carefully prepared and sown for the next ensuing Maha harvest on the 6th of November 1869, and produced the encouraging result of 20 bushels at the beginning of February 1870.

"Out of these 20 bushels, I sowed one bushel for the next ensuing Yala harvest on the 1st of June in my field at Pasyala, and eight bushels in my field at Wanduramulla in October 1870, and the remainder I gratuitously distributed to 21 cultivators of my District to extend the cultivation of this paddy in their fields also.

"The paddy of my field at Pasyala that I had sown on the 1st June 1870 was reaped at the latter end of October 1870, which gave me 24 bushels of Carolina paddy, and I distributed the same also gratuitously to 30 cultivators of my district, to be sown for the ensuing Mutes harvest.

"The eight bushels that I had sown in my field at Wanduramulla in October 1870 for the last Maha harvest was reaped at the beginning of February last, and the crop amounted to 160 bushels. Out of this I have given 25 bushels of Carolina seed paddy to Government, to be sent to the Government Agent of the Southern Province, and the rest I have distributed among 40 of the best cultivators of my district, to be sown for the present Yala harvest, and return me the seed paddy when they reap their crops; and they are at present in the nursery and will be sown on the 1st of June next.

"I have experienced that, for the successful cultivation of this paddy, it is necessary to have soft and continually moist ground. In fields near the banks of rivers or streams, or at the foot of hills, no artificial manuring is necessary, but they only require a good weeding when the plants are about a foot high.

"If this paddy is to be sown on a poor sandy soil, it ought to be manured either with bone dust, cow-manure, ashes or 'keppetiya' leaves (which are to be had in abundance in almost all jungles) buried in the fields. But transplanting in either soil would yield crops of double the quantity expected.

"Out of my fields, without weeding or manuring, it gave me twenty-fold, and by weeding, bone-dust manuring, and transplanting, sixty-fold.

"This paddy ought to be sown very sparsely, so that the trees may not be closer than six inches from each other, as they shoot out a far larger number of young plants than the ordinary paddy, more particularly in the best soil; and if sown closer than desired, the paddy trees grow thin, fall off, and the whole crop get spoilt.

"The excellence of this paddy will commence to manifest itself weekly, after the sixth week, until they are reaped, which should not be endeavoured to be done, as with the ordinary paddy, at once as young plants of different growth are springing up from every paddy bush. They ought to be reaped, as the paddy ripen from time to time.

"The stumps of these paddy trees are larger and stronger; the leaves broader, thicker, rough, and more dark green than ordinary paddy; the trees never fall down; they grow to the height of four and five feet; and, when they commence to blossom, they blossom at once; and when they commence to ripen, they ripen at once, which is not the case with the paddy of this country; and they give different crops at different times, as the plants shoot out at different ages; and this paddy answers for all the harvests in Siyané Koralé, namely, the Maha, Yala, and Mutes harvests.

"According to the paddy cultivation in the Siyané Koralé, if this paddy is to be sown for the Maha harvest, they should be sown between the 1st and 5th October; if for the Yala harvest, on the 1st and 10th of June; if for the Mutes harvest, on any early day in December, as the high water permits. If they are sown early for the Mutes harvest, they can be reaped before the rising of the river.

"This paddy stands water and all other effects of the climate better than all the qualities of the native paddy.

"I found great difficulty in inducing the Natives to try and cultivate this paddy, and they were very much disinclined to do so, until they had seen the result of my cultivation, after which they flocked in for handfuls of seed paddy from me, and I think that two years hence there will be no other paddy cultivation in Siyané Koralé but that of Carolina paddy. This paddy is gradually improving in size after each cultivation of it, and they are the largest paddy now in existence in Ceylon, and it looks more like wheat than paddy, the husk being thinner, and the paddy heavier than the paddy of this country, and when its rice is boiled for the table, it is much more white, gluey, and more heavy food than the Ceylon rice."

MADRAS.

From the annual reports on the management of the Government Farm Estate at Sydapet, the following would appear to be the results of the Carolina paddy cultivation in that farm :—

1868-69.—In this year, a few plots of ground were sown; but as the ground was ill-suited for paddy cultivation, the crop failed.

1869-70.—The experiment was most successfully carried on, and the result was highly satisfactory this year. It was proved by experience that the foreign paddy required no special culture, and that the best Native system of growing rice was also the best system for the cultivation of Carolina paddy. A plot of land containing 225 square yards was planted on the 8th October with the plants produced by half a measure of seed; the crop was reaped on 8th February, and, after drying, yielded 336 pounds of straw and 70 measures or 160 pounds of paddy. This result

would be 7,183 pounds of straw, and 1,505 measures or 3,441 pounds of rice per acre; assuming 20 measures equal to an English bushel, the yield was about 75 bushels per acre.

1870-71.—The cultivation of Carolina paddy was carried on in the Native manner, and the result was that—

1,830 square yards of land	produced	950 lbs.	of grain,	or 26	bushels per acre
2,027 " "	"	960 "	"	or 46	"
2,650 " "	"	1,120 "	"	or 40	"
A smal plot	"	215 "	"	or 23	"

Madras Revenue Proceedings for April 1871, Nos. 180-1.

The Superintendent of the Sydapet Farm made certain observations on the experimental cultivation of Carolina seeds in the Coimbatoor District. It was deduced that the land sown with Carolina paddy yielded 1,434 pounds of grain per acre, while that sown with country paddy gave an out-turn of 1,469 lbs. per acre. In discussing the relative merits of these two kinds of rice, Mr. Robertson admitted the superiority of the former over the latter in respect of the strength of its straw, and remarked that "the weather which would level a "field of country paddy, and thus discolor "and spoil their grain, would pass harm-"lessly over a crop of Carolina paddy."

Nos. 64-73.

Extract from the Proceedings of the Government of India in the Department of Agriculture, Revenue, and Commerce,—dated Simla, the 7th August 1871.

[AGRICULTURE AND HORTICULTURE.]

READ the under-mentioned correspondence on the subject of the cultivation of Carolina rice in India:

Revenue despatch to the Secretary of State, No. 67, dated 18th October 1869.

Revenue despatch from the Secretary of State, No. 96, dated 14th December 1869.

Revenue despatch from the Secretary of State, No. 98, dated 21st December 1869.

Letter to Bengal Government, No. 52, dated 22nd January 1870.

Letter to Bengal Government, No. 63, dated 25th January 1870.

Letter from Honorary Secretary to the Government Experimental Farm, Madras, dated 25th February 1870.

Letter to Government of Bengal, No. 155, dated 17th March 1870.

Letter to Mr. Stuart Hogg, No. 1729, dated 25th March 1870.

Letter from Government of the North-Western Provinces, No. 298A, dated 2nd April 1870.

Letter to local Governments and Administrations, Nos. 256-60, dated 4th May 1870.

Letter from Government of the North-Western Provinces, No. 698A, dated 19th May 1870.

Letter from Chief Commissioner of Oudh, No. 3062, dated 22nd June 1870.

Letter from Government of Bengal, No. 1807, dated 23rd June 1870.

Letter from Chief Commissioner of the Central Provinces, No. 1631—126, dated 21st June 1870.

Letter from Chief Commissioner of British Burmah, No. 238—13, dated 23rd July 1870.

Letter from Mr. S. Hogg, No. 155, dated 10th February 1871.

Letter to Mr. S. Hogg, No. 87, dated 22nd February 1871.

Letter from Government of the Punjab, No. 101, dated 24th February 1871.

Letter from Government of Bengal, No. 1124, dated 17th April 1871.

Letter from Chief Commissioner of Oudh, No. 2675, dated 3rd June 1871.

Office Memorandum from Home Department, No. 3078, dated 22nd June 1871.

Letter from Government of Bengal, No. 2141, dated 21st July 1871.

RESOLUTION.

EXPERIMENTS in the culture of this exotic staple have been carried on since 1868, and the papers read above contain the results of the experiments made in 1868-1869 and 1870 in the Bengal Presidency and certain districts in Madras and Ceylon. Although the Government of India is not yet in a position to decide authoritatively as to the exact merits of the Carolina paddy, as compared with the several indigenous varieties, and although the opinions of different officers and the reports of the results attained in different localities are very discordant, there appears to be generally a balance in favor of the superior utility of the American plant.

The advantages which this exotic possesses over the indigenous varieties may be briefly summed up as follows :

I.—The Carolina paddy plant is more hardy, as it is less easily injured by gales and heavy rains, which entirely prostrate the Indian kinds. It requires a less amount of water than the Indian plant; it suffers less from drought and also (according to some authorities) from floods.

II.—The produce of this species of rice is much greater than that of the country kinds.

(*a.*)—In respect of its yield in grain, it gives a much larger gross weight of rice in the husk, and, the husk being thinner, it yields a larger proportion of clean rice to rice in husk, and, when ripe, it does not drop its seed in consequence of a little rain or wind as the Indian varieties generally do.

(*b.*)—The straw is longer and stronger than that of Indian rice, and can be utilized for thatching and other purposes for which the Indian straw is almost useless. In Burmah it is said to be greedily devoured by cattle.

III.—It ripens earlier and in a much shorter time than the indigenous varieties, so that in Burmah and in some places on the Continent of India it would be possible to obtain two crops of Carolina for one of the common Indian rice.

IV.—When properly attended to, it appears to improve rather than deteriorate by cultivation in India.

2. On the other hand the following are the disadvantages of the Carolina rice:

I.—Its quality (according at any rate to Indian ideas) is somewhat inferior. It has little flavor and scarcely any scent. It is believed to contain somewhat less nutriment, is less liked by Native consumers, and commands at present a lower price amongst them.

II.—The grain is much more difficult to thresh out.

III.—The straw is coarser, and, in some localities, is said to be less liked by cattle.

3. Considering how little justice has on the whole been done to the cultivation of this foreign staple, and that it is quite a recent introduction into this country, the Governor General in Council thinks it may safely be concluded that the balance of advantages is in its favor, and that it is expedient to continue the trial. His Excellency in Council accordingly directs that the local Governments and Administrations in the Bengal Presidency be requested to state as early as possible what quantity of seed they will require and by what time it should reach them. Application will then be made to the Secretary of State for a supply of seed of the finest quality.

4. His Excellency in Council also directs that, besides the supply it is intended to obtain, instructions be issued to district officers to utilize all existing seed and to take particular care that all seed produced by the cultivation of the supply to be procured through the Secretary of State, is carefully preserved for use in 1873.

5. The Governor General in Council attaches great importance to the experimental cultivation of this rice, and trusts that the local Governments and Administrations will do their utmost to make this trial a really satisfactory and conclusive one,—not necessarily attempting it in all districts, but carefully selecting the most favorable localities and the most careful officers, and making such arrangements as will ensure the receipt from them of full and correct accounts of the results obtained. His Excellency in Council considers that for this purpose it would be advisable for the local Governments and Administrations at once to decide where and under which district officers the cultivation should be carried on, so that no delay whatever might occur in the distribution of the seed when it arrives.

6. The Secretary of State will be requested to procure and send out as early as possible by the Suez Canal 50 barrels of seed of the first and best quality, with an intimation that, if necessary, a further quantity will be indented for on receipt of replies from the several local Governments to the enquiry made in paragraph 3.

ORDERED, that a copy of the foregoing Resolution be forwarded to the Local Governments and Administrations named in the margin for information and guidance.

Bengal.	Central Provinces.
N. W. Provinces.	British Burmah.
Punjab.	Coorg.
Oudh.	Hyderabad Assigned Districts.

Ordered also, that a copy of this Resolution be forwarded to the Governments of Madras and Bombay, with a request that the Government of India be favored with a full report of the results obtained in those Presidencies, and of the conclusions arrived at in regard to the comparative merits of the Carolina rice and the indigenous varieties.

Ordered further, that this Resolution and a précis of the correspondence be published in the Supplement to the *Gazette of India*.

(True Extract.)

(Signed) A. O. HUME,

Secretary to the Govt. of India.

No. 31 of 1871.

SUPPLEMENT TO

The Gazette of India.

SIMLA, SATURDAY, AUGUST 19, 1871.

OFFICIAL PAPERS.

A SUPPLEMENT *to the* GAZETTE OF INDIA *will be published from time to time containing such Official Papers and information as the Government of India may deem to be of interest to the Public, and such as may usefully be made known.*

Non-Subscribers to the GAZETTE *may receive the* SUPPLEMENT *separately on a payment of six Rupees per annum if delivered in Calcutta, or ten Rupees eight annas if sent by Post.*

No Official Orders or Notifications, the publication of which in the GAZETTE OF INDIA *is required by Law, of which it has been customary to publish in the* CALCUTTA GAZETTE, *will be included in the* SUPPLEMENT. *For such Orders and Notifications the body of the* GAZETTE *must be looked to.*

GOVERNMENT OF INDIA.

LEGISLATIVE DEPARTMENT.

Abstract of the Proceedings of the Council of the Governor General of India, assembled for the purpose of making Laws and Regulations under the provisions of the Act of Parliament 24 & 25 Vic., Cap. 67.

The Council met at Simla on Tuesday, the 8th August 1871.

PRESENT:

His Excellency the Viceroy and Governor General of India, K. P., G. M. S. I., *presiding.*

His Excellency the Commander-in-Chief, G. C. B., G. C. S. I.

The Hon'ble John Strachey.

The Hon'ble Sir Richard Temple, K. C. S. I.

The Hon'ble J. Fitzjames Stephen, Q. C.

The Hon'ble B. H. Ellis.

Major-General the Hon'ble H. W. Norman, C. B.

The Hon'ble F. R. Cockerell.

The Hon'ble R. E. Egerton.

PENSIONS' BILL.

THE Hon'ble MR. COCKERELL moved that the Report of the Select Committee on the Bill to consolidate and amend the law relating to Pensions be taken into consideration. He said that the only amendments of any importance proposed by

the Select Committee were in regard to (1st) the reference of claims to pensions or grants of money or land-revenue under certain circumstances to the Civil Courts for adjudication, and (2nd) the extension of the protection from sequestration now afforded to pensions, to charitable or compassionate allowances.

The fundamental principle of the Bill, which in this respect was, as regards its application to the whole of British India, with the exception of a portion of the Bombay Presidency, a mere recapitulation of the existing law, was that as the bestowal of pensions, money-grants or assignments of land-revenue was a pure act of grace on the part of the ruling power, so the latter justly and necessarily reserved to itself absolute freedom of action in regard to the disposal of all claims respecting such allowances; hence no power could be left to the Civil Courts to act adversely to the interests or policy of the Government in such matters.

But it might frequently happen that, when the liability of the Government to pay any pension or grant of money was admitted, and there were no political considerations affecting the determination of the order of succession to such pensions or grant, the Government might wish to leave the question of succession or participation to be determined in accordance with the ordinary law of inheritance as administered by the Courts.

To meet such cases, a new section (six) had been introduced, the legal effect of which was that the Civil Courts must accept and exercise jurisdiction in regard to cases of this kind referred to them by competent authority, but could make no decree by which the admitted liability of Government could in any way be increased or adversely affected. The decree of the Court would be binding in such cases as between A and B, the rival claimants, but could not operate as regards the Government, except with the consent of the latter.

The expediency of extending the protection accorded to pensions to compassionate allowances was too obvious to admit of question. The considerations which led to the exemption from attachment by civil process of the pensions of discharged public servants applied with equal force to the case of pensions or portions of pensions continued to the family of a deceased pensioner, or a compassionate allowance granted to the family of a person who had died in the public service.

The only other alteration which called for any special remark was the provision contained in section nine of the amended Bill. It was intended to meet the probably numerous cases of grantees who, under the conditions of their grants, were left to recover the revenue assigned to them from the occupiers of the land, of which the revenue was so assigned, in the same way as the proprietor of land recovered the rent of such land from his tenants.

It was necessary to declare that the want of power in the Civil Courts to entertain suits relating to an assignment of land-revenue, and the provision of the Bill in regard to the mode of payment of grants, should not apply to such cases. It might be said, indeed in one quarter at least it had been implied, that the subject of this Bill was one which might reasonably have been left to be dealt with by local legislation as regards the provinces in which there were local Councils.

The extension of the existing law to that part of the Bombay Presidency in which it was not at present in force, which was the prominent feature of the Bill, could not have been effected by the local legislature, inasmuch as it involved an interference with the jurisdiction of the High Court.

As the action of this Council was required to provide for that necessary extension, the opportunity had been taken for a general consolidation of the very numerous and diffuse enactments on the subject of pensions, and a comparison of the enacting matter of the Bill with its repealing schedule would show what a very considerable saving of statutory substance had been accomplished by that operation.

Nor was the course which had been adopted in regard to this measure in any way calculated to prejudice the public convenience, for the practical effect of sections five, eight and fourteen of the amended Bill was to transfer future legislation on all matters of detail connected with the subject of pensionary allowances from the ordinary legislature to the local executive, and he apprehended that this was by far the most convenient and satisfactory manner of dealing with such matters.

The Motion was put and agreed to.

The Hon'ble MR. ELLIS moved that, in section eleven, instead of the words "No pension granted by Government in consideration of past services," the words "No pension granted or continued by Government on political considerations or on account of past services," be inserted. He said that the original intention had been to extend the provisions of section eleven to this class of pensions, but that it had unintentionally been overlooked in Committee. He believed that the policy of the Government, with reference to this subject, might be seriously interfered with, if pensions granted on political grounds were not exempted from the ordinary process of the Courts. He also proposed the introduction of the words "or continued," so as to provide for cases in which pensions had been "continued," though not in the first instance granted by Government.

The Motion was put and agreed to.

The Hon'ble MR. COCKERELL then moved that the Bill as amended be passed.

The Motion was put and agreed to.

OATHS AND DECLARATIONS AMENDMENT BILL.

The Hon'ble MR. STEPHEN presented the Report of the Select Committee on the Bill to amend Act No. V of 1840 (concerning the Oaths and Declarations of Hindoos and Mahometans).

The Council adjourned to Tuesday, the 15th August 1871.

SIMLA;
The 8th August 1871.

H. S. CUNNINGHAM,
Offg. Secy. to the Council of the Govr. Genl. for making Laws and Regulations.

GOVERNMENT OF INDIA.

DEPARTMENT OF AGRICULTURE, REVENUE, AND COMMERCE.

Rain-fall and Agricultural Prospects in the North-Western Provinces and in Mysore and Coorg.

From C. A. ELLIOTT, ESQ., Officiating Secretary to the Government, North-Western Provinces, to the Secretary to the Government of India in the Department of Agriculture, Revenue, and Commerce,—No. 1220 A dated Nynee Tal, the 3rd August 1871.

IN continuation of my letter No. 1178A., dated 26th July, I am directed to forward, for the information of His Excellency the Governor General in Council, an Abstract Statement of the average rain-fall in the Districts of the North-Western Provinces during the week ending 14th July 1871, and of the total fall from the 1st June 1871.

2. I am to add that so far the agricultural accounts from all parts of the Province are favorable.

Abstract Statement of average rain-fall in the Districts of the North-Western Provinces during the week ending the 14th July, and total fall from 1st June 1871.

DISTRICTS.	Week ending 14th July.	Total from 1st June 1871.	REMARKS.
Kumaon	5·6	23·9	
Gurhwal	4·0	15·5	
Dehra Doon	5·9	31·8	
Seharunpore	2·3	13·5	
Bijnour	4·8	18·5	
Moradabad	6·3	17·5	
Terai	4·8	25·0	
Bareilly	6·6	20·1	
Budaon	6·8	13·5	
Shahjehanpore	7·9	20·2	
Moozuffernuggur ...	3·4	8·5	
Meerut	4·6	11·2	
Boolundshuhur	3·2	8·1	
Allygurh	2·4	7·8	
Etah	6·4	15·1	
Furruckabad	4·3	9·5	
Muttra	4·0	10·5	
Agra	2·1	8·1	
Mynpoory	4·2	14·2	
Etawah	2·9	10·7	
Cawnpore	.....	.....	
Jaloun	2·1	9·9	
Jhansie	3·2	11·1	
Lullutpore	1·6	14·3	
Humeerpore	1·7	9·4	
Futtehpore	3·2	15·7	
Banda	2·3	14·1	
Allahabad	5·1	19·1	
Mirzapore	4·9	18·1	
Benares	5·0	16·3	
Jounpore	7·4	14·9	
Ghazeepore	4·0	13·4	
Azimgurh	7·5	15·1	
Goruckpore	5·8	19·7	
Bustee	5·3	13·5	

Statement showing the rain-fall, the state of the weather, and the prospect of the crops in Mysore and Coorg for the week ending the 15th July 1871.

PROVINCE.	Rain-fall.	State of the weather.	Prospect of the crops.	REMARKS.
Mysore ...	Rain-fall registered at Bangalore 3 inches 90 cents.; at Shimoga, in the Nagar Division, 2 inches 15 cents. Rain to a less extent than the above has fallen in the other Districts.	South-west monsoon with showers of rain prevailed during the week.	As stated in last week's report, the prospects of the crops have been improved by the change of weather; rain having fallen generally in the Province. In some Districts, *viz.*, Mysore, Hassan, Chituldroog, and Toomkoor, the crops are suffering from want of sufficient rain.	
Coorg ...	Rain-fall gauged at Mercara, 7 inches 30 cents.	South-west monsoon in full force.	Prospect of crops reported to be generally good.	

MYSORE CHIEF COMMR.'S OFFICE,
BANGALORE;
The 25th July 1871.

T. G. CLARKE, *Captain,*
Officiating Secretary.

Statement showing the rain-fall, the state of the weather, and the prospect of the crops in Mysore and Coorg for the week ending 22nd July 1871.

PROVINCE.	Rain-fall.	State of the weather.	Prospect of the crops.	REMARKS.
Mysore ...	At Bangalore 30 cents. In the Province, the rain-fall registered varies from 35 cents. to 1½ inches.	South-west monsoon prevailed with strong winds, and occasional showers.	The reports received from the several Districts are on the whole very favorable. The standing crops are generally doing well, though, in some localities, the want of abundant rain is felt.	
Coorg ...	At Mercara, 15 inches 94 cents.	South-west monsoon with heavy rain.	The prospects of the crops are good.	

MYSORE CHIEF COMMR.'S OFFICE,
BANGALORE;
The 29th July 1871.

T. G. CLARKE, *Captain,*
Officiating Secretary.

Statement showing rain-fall, state of weather, and prospect of crops in the Districts under the Central India Agency, from 1st June to 15th July 1871.

District and date.	Rain-fall.	Direction of Wind.	State of weather.	Prospect of crops.
Indore.				
June 1st to July 15th ..	7 inches 94° ...	Prevailing wind, South-West.	Showery with heavy rain latter part of June. 1st to 15th July fair with clouds.	Satisfactory.
Sehore.				
June 1st to July 15th ..	17 inches 40° ...	Prevailing wind, South-West.	Ditto.	Ditto.

State and condition of Indian Immigrants in Grenada during 1870.

From Her Majesty's Secretary of State for India, to His Excellency the Right Hon'ble the Governor General of India in Council,—No. 48 (Public), dated India Office, London, the 15th June 1871.

IN continuation of paragraph 2 of my despatch of the 26th of October last, No. 99, I forward herewith a copy of a despatch* addressed by the Lieutenant-Governor of Grenada, to the Governor-in-Chief, Barbadoes, covering the report† of the Immigration Agent at Grenada on the state and condition of the Indian immigrants in that colony during the year 1870. I also transmit a copy of a letter‡ from the Emigration Board, to the Colonial Office, on the subject.

* Dated 23rd February 1871, No. 19.

† Dated 10th February 1871, with two enclosures.

‡ Dated 18th April 1871.

2. Your Excellency in Council will perceive that the Agent's report is upon the whole, satisfactory.

3. In reply to objections raised by that officer to the new Act of the Grenada Legislature No. 399, the Lieutenant-Governor of the Colony points out, it will be observed in the first place, that no complaints have reached him of immigrants being unable to obtain employment; and secondly, that Section 93 of the Act in question fully secures the right of the coolies to back passage, which Mr. Munro had imagined was no longer provided for.

4. I would draw the attention of your Lordship in Council to the suggestion of the Immigration Agent, concurred in by the Emigration Board in this country, that the coolies should, on sanitary grounds, receive rations in lieu of wages for the first two or three months after arrival in the colony. It appears that the practice has been adopted with successful results in Mauritius, British Guiana, Trinidad, and Jamaica.

From the Lieutenant-Governor of Grenada, to His Excellency the Governor-in-Chief, Barbadoes,—No. 13—19, dated Grenada, the 23rd February 1871.

I HAVE the honor to transmit to your Excellency a letter* from the Immigration Agent, enclosing his report† on the state and condition of the Indian immigrants in this colony for the year 1870.

* Enclosure No. 1, dated 10th February 1871

† Immigration Report, year 1870.

2. With reference to Mr. Munro's observations on the Immigration Act, 1869, contained in the 7th paragraph of his letter, I have to report as follows:

1st.—No complaints have reached me of any immigrant being unable to obtain employment. It would appear, however, from the fact that the planters evince no desire to re-indenture their laborers, that they do not place that sufficient value upon their services which is relied upon by the Government to aid in securing for the immigrants a liberal and kind treatment.

2nd.—For the simplification of the law, the provisions of Act 256 were expressly omitted. Instead of the annual payment of a small sum into the hands of the Immigration Agent, to be applied towards the payment of the back passage, it was thought desirable to pay to the cooly a bounty provided by the Act, in order to induce the entering into a long contract from time to time, leaving the back passage to be provided out of the Immigration Fund.

3rd.—The repeal of Act 390 does not involve any breach of faith as suggested by the Immigration Agent, inasmuch as clause 93 fully secures the right to back passage of the coolies alluded to.

4. With reference to the 3rd and 4th paragraphs of his report, I have to remark as follows:

1st.—That the treatment of unindentured and unlocated sick immigrants is provided for by annual grant to the Colony Hospital under the Immigration Act. Free admissions should be confined to that class alone. If such immigrants, located on estates, and for whose treatment such estates are liable, have been admitted into the Colony Hospital without payment of the expenses, it has resulted from the inattention of the Immigration Agent. To prevent any such recurrence I have instructed him to make quarterly instead of half-yearly inspections of the estates on which immigrants are located.

2nd.—There is no ground for the regret expressed by the Immigration Agent, as, under the interpretation clause, the penalty is recoverable from the proprietor or manager, or other person having the direction of the estate.

3rd.—The state and condition of the immigrants appear, on the whole, satisfactory.

From G. G. MUNRO, ESQ., Immigration Agent, Grenada, to the Colonial Secretary,—dated Grenada, the 10th February 1871.

IN furnishing you with the annexed returns of the Indian immigrants who were in this colony on the 31st December last, I beg to furnish at the same time a report on the sanitary condition of the immigrants after personal inspections of them in the month of January of the present year.

2. *Their numerical strength.*—From the semi-annual returns furnished this Department by employers, I find that there were on estates, located in agricultural service, at the close of the year, 841 male and 345 female, 421 boys and girls, and 107 infant Indian immigrants, making a total of 1,714 souls.

A few bountied Indians, who have emancipated themselves from plantation labour, and have rented lands on the Upper Pearls Estate, residing there, are not included in this return.

3. *The increase in* 1870.—There were no importations of immigrants in 1870, and the natural increase among them was 40 Indian boys and 25 girls, making a total of 65 births.

4. *The decrease in* 1870.—There were two departures only from the colony in 1870, to the neighbouring Island, Trinidad; and the sanitary report hereto attached exhibits a mortality of 40 Indians, equal to 2·33 per cent., a death-rate somewhat less than that of the preceding year, but which should, I consider, be much lower in a colony so salubrious as this is known to be. The deaths were chiefly among children.

5. *Crimes and offences.*—From the returns furnished by the Justices in the several Districts, under the 69th Section of the Act, there would appear to have been only 20 convictions and imprisonments of Indians during the past year, namely, nine for assaults, one for burglary, one for cane-stealing, one for cutting and wounding, three for petty thefts, one for obtaining goods under a false pretence, one vagrancy, and three for breach of contract.

There were two commitments for arson and burglary; but the parties were acquitted after trial—a calendar by no means heavy for a heathen population who receive neither moral nor religious instruction.

From the paucity of convictions for breach of contract, I apprehend that those cases in which defendants pay money into Court on conviction are not included in those returns. Unless all convictions involving loss of time to employers are furnished me, the provisions contained in the 64th Section of the Act cannot be fully carried out.

6. *The coolies imported in* 1866.—The immigrants imported by the ship *Countess of Ripon*, on the 24th January 1866, completed their industrial service of five years on 23rd January of the present year. Certificates will be issued to those entitled thereto.

Of the 260 Indians landed here, there are now in the colony 84 men, 50 women, 29 boys, 36 girls, and 18 infants; in all 217 souls.

The natural increase among them during those five years was 32 boys and girls, and the decrease by deaths 67,—nearly one-fourth of the number landed. This mortality occurred chiefly among the male adults during the first two years of residence, and is, I think, sufficiently convincing that the new comers require special care and attention for some months after arrival here. With the view to ameliorate the privations which the new comers must feel by a sudden change of diet, I would respectfully suggest that in future the surplus stores of the importing vessel should be purchased, and divided among employers at the cost price, for the use of the immigrants, in quantities to last two or three months, and to be issued to the immigrants in lieu of wages, by which time they would get accustomed to our Native products.

The mortality above-mentioned occurred on the Mount Alexander, Lafortune, Mornefurdue, Plains, Samaritan, Simon, and Telescope Estates chiefly. Nine immigrants were removed to Demerara from the first-named estate.

7. *The new Immigration Act*, 1869.—Since the passing of the new law on the 15th October 1869, no immigrants have been re-indentured under its provisions, and at the present moment there is not an Indian immigrant under an annual contract to labour. This is an anomaly which could not have been contemplated.

The new law provides but one re-indenture, namely, after the expiration of the immigrants' first five years of industrial service in the Colony; whereupon if he accepts a bounty of £10, he may re-indenture for other five years to an employer. Employers have not as yet availed themselves of the Act, and contracts therefore, under which the immigrants at present serve, are verbal or monthly ones, which may be determined at any time by the misconduct of either party. A contract which can be terminated by six days' notice cannot be otherwise than unsuited to the planter, who requires steady and constant labour.

The new law repealed Act No. 256, under which employers contributed largely to the immigration fund for the back passages of Indians, and as the provisions contained in the second clause have not been re-enacted, these contributions, which amounted in the average to £700 per annum, have ceased. Employers do not, I believe, object to pay $7 or even $10 per annum to secure the services of the certificated Indians; but objection has been expressed, not by employers only, but by the immigrants themselves to the long indenture of five years. The latter prefer the liberty to change their employer in case they are not well treated, to resorting to complaint or legal measures.

I am of opinion, therefore, that an annual re-indenture of the immigrant during the last five years of his residence, although entailing additional work on this department, would be far more satisfactory to the employer and the employed. The new law also repealed Act No. 390, under which the immigrants per *Fullwood* and *Galawar* accepted bounties with a stipulation therein contained, that the right to the back passage would be secured to them at the expiration of the additional term of five years. Although I do not think that many of the bountied Indians will avail themselves of it, yet, as a few of them may wish to return home on the expiration of the additional term, the repeal bears an aspect of breach of faith, and I think it my duty to advert to it here, as it may have been unintentional.

8. *Time-expiring Indians.*—Next year the coolies imported by the ships *Accrington*, 9th January 1862; *Athletoe*, 25th March 1862; and *Ganges*, 29th May 1862, will have completed ten years of industrial residence in the colony, and will be entitled to return passages to Calcutta under the 93rd Section of the new law.

Of these immigrants there were in the colony at the close of last year as follows:

		Men.	Women.	Boys.	Girls.	Infants.	
Per *Accrington*	...	160	60	24	27	13	
„ *Athletoe*	...	144	41	22	14	10	
„ *Ganges*	...	151	30	15	16	6	
Total	...	455	131	61	57	29	733 souls.

Of these 586 adults, 414 have notified their desire to remain in the colony with their families if bounties are given to them, and 172 will return to Calcutta with their families.

It being evidently in the interests of the colony, and advantageous as well as more economical to employers that as many of these acclimatised immigrants as possible should be induced to prolong their stay among us, it is to be hoped that the legislature will deal as liberally towards them as with those of previous importations by providing bounties for such of them as will accept thereof and remain for an extended period of five years. Should this be done, I have no doubt that many of those who have resolved to depart will change their minds and remain also.

9. *Relation between employer and employed.*—I cannot say that the conduct of the Indian immigrants towards their employers was otherwise than good generally during the year 1870. Peaceful, submissive to order, and industrious, they are nevertheless very sensitive and excitable when wages are withheld, or not fairly paid them. When fairly treated, they are contented and averse to change, and many instances can be adduced of the entire period of their engagement with the colony having been spent under one employer; on the other hand, if any dissatisfaction existed among employers, such may be traced to abstention on their part from adopting the new law by re-indenturing under its provisions and the effects resulting from the short contracts referred to in No. 7, the remedy for which was clearly in their own hands.

GRENADA.—A Return of the Indian Immigrants located on the Plantations in this Colony, in the several Districts thereof, as compared with the previous year, showing the increase and decrease during the year ended 31st December 1870.

Districts.	Number on estates on the 31st December 1869.								Increase in 1870.				Decrease in 1870.				In Gaol.		In Colony Hospital.		Number of estates on 31st December 1870.						Total.	
	Adults.		Children.		Infants.		Total.		Births.		Arrivals.		Deaths.		Departures.						Adults.		Children.		Infants.			
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
St. George	61	20	9	17	3	2	73	39	2	3	Nil.		1	...	...	...	1	...	1	...	66	24	16	22	2	5	86	51
„ David	95	39	20	21	5	3	120	63	3	1			2	3	1	...	...	...	1	3	88	36	31	19	9	4	129	62
„ Andrews ...	428	168	79	89	25	18	532	275	18	9			11	4	...	...	...	...	2	...	349	147	88	87	28	20	467	254
„ Patricks	288	113	49	52	13	15	350	180	15	10			8	9	...	...	2	...	5	1	290	117	71	64	19	16	387	198
„ Marks	7	4	4	2	2	...	13	6	...	1			...	...	...	...	...	...	1	...	12	6	2	4	2	1	17	11
„ Johns	20	13	11	3	1	2	32	18	2	1			1	1	1	...	1	...	...	...	21	11	10	7	1	...	33	18
Carriacon	1	...	...	...	...	...	1	...	...	...			...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...
Total ...	900	357	172	184	49	40	1,121	581	40	25	...	...	23	17	2	...	4	...	10	4	827	341	218	203	61	46	1,120	594

Immigration Office;
The 1st February 1871.

G. G. MUNRO,
Immigration Agent.

GRENADA.—A General Report on the sanitary condition of the Indian Immigrants located on the Plantations in this Colony, with a statement of the increase and decrease among them during the year ended 31st December 1870.

Name of Plantation.	No. of Return.	Number on Estate 31st December.		Births in half year.		Deaths in half year.					Sanitary condition of immigrants on personal inspection in the month of January, and remarks.
		M.	F.	M.	F.	Date.	Name of deceased.	Cause of death.	M.	F.	
Tempe	1	3	...	...	...	.....	.....	.....	...	...	In good health.
Carriere	2	18	4	...	...	August ...	Sahebjat, a boy...	Fever	1	...	Ditto.
Mount Horne ...	3	15	4	...	...	.....	.....	.....	...	...	Ditto. A better disposition evinced in treatment of the coolies since fine was imposed on proprietor for attempting to cast off the sick.
Prospect Park ...	4	1	...								
Springs	5	10	3	...	...	.....	.....	.....	...	...	In good health.
Bologne	6	53	39	...	1	.....	.....	.....	...	...	Two cases of yaws under treatment. Other coolies in good health.
Woodford	7	2	1	1	...	.....	.....	.....	...	...	In good health.
Palmyle	8	16	13	...	...	16th July ...	Mathew ...	Debility, an infant ...	1	...	Ditto.
Balthazar	9	36	27	...	1	13th July ...	Nundoo ...	Senile debility ...	1	...	Ditto.
Mount St. Irvans ...	10	1	...	...	...	.....	.....	.....	...	...	Ditto.
Bocage	11	1	...	...	...	.....	.....	.....	...	...	Ditto.
Samaritan	12	5	4	...	...	.....	.....	.....	...	...	Ditto.
Pearls	13	34	15	...	...	30th November	Oodhoo ...	Dysentery	1	...	Ditto.
Grand Bras	14	47	20	2	...	.....	.....	.....	...	...	Ditto.
Bell Vue	15	3	...	...	...	.....	.....	.....	...	...	Ditto.
Grand Bacolet ...	16	25	15	1	...	.....	.....	.....	...	...	Ditto.
Caliviny	17	29	19	...	2	.....	.....	.....	...	...	Beersye and an infant girl under treatment for yaws. The other coolies well.
Dougaldstone ...	18	15	5	1	...	.....	.....	.....	...	...	In good health.
Piedmont	19	4	2	...	...	.....	.....	.....	...	...	} Coolies all well.
Diamond	20	12	9	...	1	.....	.....	.....	...	...	
Mount William ...	21	14	8	...	...	.....	.....	.....	...	...	Ditto.
Reguin	22	50	15	...	...	.....	.....	.....	...	...	Juthun was placed in Colony Hospital on 18th January by Agent for treatment of a bad thumb (bitten in a fight). Estate's Doctor had not seen him, and he was attending Assembly. Other coolies well.
Simon	23	26	8	1	1	3rd November ...	Jehn, an infant...	Eutoza	1	...	} Coolies in Simon and Marli well.
Marli	24	7	1	...	...	.....	.....	.....	...	...	
Montreuil	25	30	18	...	...	10th November	Sookul, infant ...	Fever	1	...	Two cases of yaws under treatment. Other coolies well.
Paradise	26	22	16	...	1	.....	.....	.....	...	...	One case of yaws and one of rheumatism. 'Dawhoo' found drowned under the bridge on this estate on 10th January 1871. He had been sick and had not had medical attendance. Proceedings taken against the proprietor. Other coolies in good health.

C

Sanitary Report,—continued.

Name of Plantation.	No. of Return.	Number on Estate 31st December.		Births in half year.		Deaths in half year.					Sanitary condition of the immigrants on personal inspection in the month of January, and remarks.
		M.	F.	M.	F.	Date.	Name.	Cause of death.	M.	F.	
Clarkes Court ...	27	23	13	...	...	.....	.....	.....	...	...	Coolies on Clarkes Court and Corinth in good health.
Corinth ...	28	24	13	...	...	.....	.....	.....	...	...	
Mount Gay ...	29	10	5	1	...	.....	.....	.....	...	...	In good health.
Lesterre and Columbere ...	30	16	11	...	...	.....	.....	.....	...	...	Ditto.
Snell Hall ...	31	12	9	1	1	September ...	An infant ...	Debility	...	1	Ditto. Some dissatisfaction among the coolies here, wages not fairly paid. Stock-keepers complained of not being paid for Sunday's work. Explained to overseer in the presence of the coolies that they cannot be compelled to work on Sundays; but if they do work, they must be paid.
Mount Craven ...	32	6	...	...	...	.....	.....	.....	...	...	All well.
Telescope ...	33	32	23	3	1	.....	.....	.....	...	...	Some cases of yaws on this estate among the children. Other coolies well.
St. Cyr and Meribeau ...	34	24	11	...	...	.....	.....	.....	...	...	Koolwantee and Doyalchand under treatment for yaws. Other coolies well.
Lavalette ...	35	2	...	...	...	.....	.....	.....	...	...	Ditto ditto.
Belmont ...	36	47	30	...	1	.....	.....	.....	...	...	Coolies in general good health.
Lataste ...	37	19	14	...	...	10th September	Seeballack ...	Leprosy	1	...	Coolies all well except "Tilluchdharry," who has ulcers on leg, and is treated for.
Morhefendue ...	38	36	20	1	...	.....	... "	.....	...	...	Coolies all well except "Sewtobul," who has crabs in feet of long standing. Recommended him to be sent to Colony Hospital for treatment.
Lafortune ...	39	25	12	Twins. 1	1	14th November	Adriana, child ...	Worms	...	1	Coolies on Lafortune all well. Sukolvee still an invalid of incurable disorder.
						5th December ...	Fooliah, a girl ...	Debility	...	1	
						Ditto ...	Twins ...	Ditto	1	1	
Dunfermline ...	40	26	12	...	...	.....	.....	.....	...	...	Coolies all well, but complained of cottages, leaking. Manager appeared to have intentionally absented himself.
Mount Rich ...	41	34	22	3	...	.....	.....	.....	...	...	Coolies all well.
Tuileries ...	42	24	11	3	...	.....	.....	.....	...	...	Some cases of yaw among the children on Tuileries, which are being treated in their cottages. Other coolies well.
Hope Vale ...	43	4	5	...	...	.....	.....	.....	...	...	Coolies well.
Union D ...	44	2	2	...	...	.....	.....	.....	...	...	Ditto.
Montrose ...	45	44	16	...	1	1st July ...	Chamalia ...	Syphilis ...	1	1	Ditto.
Westerhall ...	46	29	31	...	...	5th " ...	An infant ...	Debility ...			
						20th December ...	Lilloo, a girl ...	Fever ...	1	1	Some cases of yaws among the children. Other coolies well.
						22nd " ...	Jeetoo, a boy ...	" ...			
Hope ...	47	41	27	1	2	.....	.....	.....	...	...	Three cases of yaws under treatment. Other coolies well.

Observatory ...	...	48	19	5	...	...	7th July ...	Jannalli ...	Injuries received in a drunken fight.	...	...	The coolies well. The case of Jannalli reported in previous half-year.
Mount Rodney	...	49	22	13	...	...	.....	.....	.....	...	...	Coolies all well.
River Antoine	...	50	13	5	...	...	26th October ...	Sukurum ...	Dropsy	1	...	Coolies here are in pretty good health, but they complain of the barracks near to work being unhealthy. Attorney promises to have the same removed to a more healthy situation.
Plains ...	...	51	53	22	1	2	24th October ...	Somoreea, a girl	Worm fits	...	2	Mooklall ill, but progressing under treatment. Other coolies well.
							2nd November	Oomria, a girl ...	Fever			
Baillies Bacolet	...	52	24	7	...	...	5th July ...	Luckhyram ...	Do.	1	1	Coolies all well.
							10th August ...	Kumly, an old woman.	Dysentery.			
Grenville Vale	...	53	6	2	...	...	.....	.....	.....	...	...	Ditto.
Mount Parnassus	...	54	3	..	...	...	.....	.....	.....	...	...	Ditto.
							5th September	Boodhun ...	Accidental death ...	1	...	This man died in the town of Grenville from injuries by a horse. Coroner's jury returned a verdict of accidental death.
							3rd September	Curreembux ...	Debility from large ulcers	1	...	This man died in the Colony Hospital.
			Births ...		21	16	In half year to 30th June.		Deaths ...	15	9	in half-year to 30th June.
					19	9				8	8	
			Total ...		40	25			Total ...	23	17	

REPORT.

1. The sanitary condition of the Indian immigrants located on estates in this colony, when inspected by me personally in the month of January last, appeared to me, on the whole, good, notwithstanding the wet season of the last half-year, which is generally productive of diarrhœa and dysentery, disorders which afflict the immigrants, indulging as they do in ripe and unripe fruit.

2. The medical attendance on immigrants on estates was regular, with exception of the Parish of St. Patrick, where the resident practitioner, from severe indisposition, was unable for two months to give the proper number of visits. The aid of brother practitioners was occasionally available however. It must nevertheless be very apparent that one medical attendant for so large a district is quite insufficient, and which, unless remedied, may hereafter result in serious consequences to employers were the law to be put in force.

3. There were 65 births and 40 deaths during the year. The mortality in the past half-year occurred chiefly among the children, of whom 14 died, and, as compared with that of the previous year, the death-rate is lower, notwithstanding the disadvantage experienced as to short medical attendance above referred; a result which I attribute to acclimatization rather than to any better attention bestowed on the sick by managers on estates. I am strengthened in this conclusion by the fact that a larger number of coolie-patients were admitted into the Colony Hospital last year than in the preceding, namely, 131 in 1870 against 121 in 1869. There were only twelve admissions in 1870 with guarantees from their employers for the payment of the hospital charges. It must, therefore, be evident that the onus of restoring the sick Indian laborers to health (who are, with very few exceptions, located on estates) has been borne by the public. Were the sick coolies better looked after, these admissions into the public hospital at the capital would not be so large.

4. The convictions of the proprietors of Mount Horne and Dunfermline estates announced in my previous report, and the confirmation of the decision of the Police Magistrate in each case, by His Honor the Chief Justice on appeal, cannot fail to have a salutary effect on managers of estates, by inducing greater attention to the sick immigrants. I have had occasion to proceed against the proprietor of Paradise Estate for neglect on the part of the manager on that property to make available to "Dowhoo," when sick, the hospital accommodation and medical attendance required by law to be provided. I fear that this immigrant threw himself into the river in despair and was drowned. It is to be regretted that the penalty in this case is imposed on the employer, and not on the manager, who is really the culpable party, his attention having been called to the condition of this man by me by a letter.

5. Yaws continues prevalent among the immigrants, and has increased among the Creole laborers also. This loathsome and debilitating disease will not be stamped out, unless measures are adopted by the legislature to compel those afflicted with it into a lazaretto.

IMMIGRATION OFFICE, GRENADA;
The 1st February 1871.

G. G. MUNRO,
Immigration Agent.

From T. W. MURDOCH, ESQ., Emigration Board, to SIR FREDERIC ROGERS, Bart.,—dated the 18th April 1871.

I HAVE to acknowledge your letter of 6th instant, with a despatch from the Lieutenant-Governor of Grenada, enclosing the half-yearly report to the 31st December last of Mr. Munro, the Emigration Agent.

2. It appears from these papers that at the end of 1870 there were located on the several plantations in the colony 1,714 coolies, of whom 1,120 were males and 594 were females. Besides these, there are said to be a few Indians who, having obtained bounties, reside on Upper Pearls Estates on lands which they rent there.

3. No emigrants were introduced in the year. The births number 65, and the deaths 40, showing a death-rate of 2·29 per cent., which is somewhat less than that of 1869. The deaths occurred chiefly amongst the children.

4. The recorded convictions and imprisonments were not numerous—20 in number;—and were chiefly for minor offences, one only being for burglary, one for cutting and wounding, and three for breaches of contract. To account for the few convictions on this latter head of offence, Mr. Munro supposes that these cases in which the defendants pay money into Court on conviction are not included in the returns, and he suggests, in which suggestion I concur, that all convictions involving loss of time to employers should be furnished to him, otherwise he cannot carry out the duties imposed on him by the 64th Section of the Emigration Act, 1869, No. 399.

5. In January 1866, 260 coolies were landed from the ship *Countess of Ripon*. Of these there are now in the Island 84 men, 50 women, 29 boys, 36 girls, and 18 infants, in all 217 souls, the adults among whom completed their industrial service on the 23rd January last; certificates will accordingly be issued to those entitled to them. During the five years, the deaths amongst this particular body of people were 67, or nearly one-fourth of the number landed, and the births 32. As the mortality occurred chiefly amongst the male adults and during the first two years of residence, Mr. Munro thinks that non-acclimatization and sudden change of diet has much to do with it. He recommends, therefore, that coolies should receive rations instead of wages for the first two or three months after arrival. The principle of rationing the emigrants has now been adopted with successful results in Mauritius, British Guiana, Trinidad, and Jamaica, and I see no reason why it should not be extended to Grenada.

6. During the ensuing year 733 being the remainder of the emigrants imported in 1862 in the ships *Accrington*, *Athletoe*, and *Ganges*, will be entitled to return passages. But of 586 adults, 414 have notified their desire to accept bounty and remain in the colony with their families. The remaining 172 will be sent back to India, unless, before an opportunity of doing so occurs, they are induced to forego their claim.

7. In commenting on the working of the Emigration Act No. 399 of 1869, Mr. Munro observes that no emigrant has been re-indentured under it, and that at present there is not a single coolie under an annual contract of service. The Act (Section 51) provides for re-indenture for periods of five years and for no shorter terms. This Mr. Munro considers inexpedient, and that shorter contracts would be preferred both by employers and labourers. The Lieutenant-Governor explains, however, that no reports have reached him of any emigrant being unable to obtain employment, and that in repealing the Act No. 256 it was thought desirable to promote the system of long contracts by the offer of a bounty of £10 to the emigrant on each occasion of re-indenture, and throwing the back passage on the Emigration Fund instead of requiring an annual payment of a small sum from employers towards the cost of back passages.

8. Mr. Munro considers also that the repeal of the Act No. 390, which secured a back passage to certain emigrants at the expiration of a second term of indenture, may be looked upon as breach of faith. But the Lieutenant-Governor points out that in this Mr. Munro is in error, inasmnch as the 93rd Section of the repealing Act, No. 399, expressly secured their right.

9. Besides his general report Mr. Munro forwards a sanitary report upon which Lieutenant-Governor Mundy comments, and states that to prevent the abuse of throwing upon Colonial funds hospital expenses for which the estates are liable, he has directed that in future the Agent's visits to estates should be made quarterly instead of half-yearly.

10. On the whole these reports are satisfactory as regards the emigrants.

Results of Experiments with Compton's Chemical Manure.

MESSRS. C. H. COMPTON & Co. having written to Government offering to supply samples of Australian chemical (bone). manure for the cost of carriage, the Government of India, in July 1869, ordered two tons from the firm for experiment.

This quantity was sent in October 1869 to the Governments of Bengal, the Punjab, and the North-Western Provinces, and the Chief Commissioner of Oudh, for distribution to the Superintendents of the Botanical Gardens, Calcutta and Saharunpore, and the Agricultural and Horticultural Societies, Calcutta, Lucknow, and Lahore, one ton being thus used up, and the other ton was sent to the Cotton Commissioner for the Central Provinces and the Berars to be tried upon his model cotton farms.

REPORTS OF RESULTS.

I.—North-Western Provinces, No. 1302*A, dated* 21*st September* 1870, *and No.* 1131*A, dated* 15*th July* 1871.

Dr. Jameson reported in July 1870 that, on his return from furlough in the November previous, he found lying in the godowns two barrels of the manure which had not been used in any way. He says,—"Though the season was then far advanced, I applied about a fourth of the quantity, a maund, as a top-dressing to some pedigree wheat and other cereals that had been received from England during the season. But the results were most unsatisfactory, as the cereals only seeded very sparingly. To annuals in the form of liquid manure it was also applied, but the blooms were not superior to those manured with common city guano. The lateness of the season in which it was applied as a top-dressing to cereals may account for its failure." Dr. Jameson kept about half the quantity received for further trial on cotton, paddy, &c., and promised a further report. The Government of the North-Western Provinces in sending on this report said, that the failure was probably attributable to the lateness of the season in which the manure was applied.

The further trials, however, made in 1870, were equally unsuccessful. In his report dated the 22nd June 1871, Dr. Jameson said—"Experiments have been made with it on cereals, vines, and many flowering shrubs, both annual and perennial, with most unsatisfactory results, as the improvement in the plants was not equal to that brought about by city or cowshed manure."

II.—Oudh, No. 5243, *dated* 25*th October* 1870.

The manure was made over to Dr. Cameron, Superintendent of the Department of Science, Lucknow. In the absence of information regarding the chemical composition of the manure, or its uses or mode of application, Dr. Cameron made over the whole consignment to the English practical gardener in charge of the public gardens, with instructions to try it on a variety of crops of garden-produce as opportunity offered, and to report the results. The report was, Dr. Cameron says, in substance as follows: "The patent chemical manure was tried on crops of cabbages, carrots, turnips, and lettuces. The cabbages received two top-dressings, and one application to the roots before earthing up. The carrots, turnips, and lettuces received two top-dressings only. These vegetables were not equal to others which had been dressed with night-soil, or even to those grown on soil which had been manured with a mixture of cow-dung and night-soil. It was also tried on flower annuals without any obvious effect. The plants thus treated did not thrive better, and the flowers were not larger or more prolific than those which had been dressed with leaf-mould, or the other ordinary manures. It seemed, however, to answer very well in the form of a liquid manure for weakly plants. With this exception the results of its application have been entirely negative." Dr. Cameron thinks the manure is suited to a clayey soil, which is capable of holding it, but that it will not answer for the alluvial soil of India where frequent irrigation probably carries it readily down into the sub-soil and out of reach of the plant. Dr. Cameron reserved a portion of the manure for trial on wheat and other grains, which he was going to cultivate experimentally during last cold season, and promised a further report in due course. No further report has been received.

III.—Punjab, from the Secretary to the Agricultural and Horticultural Society, Lahore, dated 15*th November* 1870.

"The manure sent was extensively tried with our crops of peas, turnips, and also with various kinds of flower seeds in the proportion of four cwt. to each acre

of soil. The results of this application were in every way good, and quite equal to the effects of the city manure on similar crops." But the Society said the cost of the manure (probably £20 a ton at Lahore) was so much greater than the cost of city manure (10 annas for $\frac{1}{8}$ of a ton), the supply of the latter being also very abundant, that it was obviously undesirable to use it in such a place, though it might be of great service in places where natural manure was deficient or expensive.

IV.—Bengal, letters of 17th November 1870, No. 4477, and 8th May 1871, No. 1684.

With the first letter the Government of Bengal sent the following report from Mr. John Scott, Curator of the Botanical Gardens, Calcutta:

"I have tried Compton's patent chemical manure on cotton, sugar-cane, and guinea grass. Having no knowledge as to the character or potency of the manure, I, in my first experiment, applied it in much the same quantity as I would good guano. I also repeated the application twice at intervals of from 10 to 14 days, but on none of the above crops did the portions thus treated present any very marked difference from those which had received no manure. I have also tried it (on the previously mentioned crops) weight for weight with oil-cake, and the results show very clearly that the latter (oil-cake) is alike the more energetic and productive."

The Agri-Horticultural Society distributed the quantity given to it among thirty members for trial. The following five members of the Society have reported the results of the trials made by them:

Colonel Edward Money, of Semgoo Plantation, Chittagong, November 20th, 1870.

"I tried the manure very carefully, and could perceive no benefit whatever from it. No one believes more in the advantages of manure for tea than I do, but I found no advantage from this."

Mr. E. C. Bayley, Calcutta (no date).

"I tried it in small quantities, and with several different kinds of plants. I applied it round the roots of dahlias and artichokes, and dug it in with roots of dahlias. I used it also with onions as a top-dressing. In no case, however, did it appear to produce any result. In every instance I applied it only to a certain portion of the bed, and in every case the bed seemed as good where no chemical manure was applied as where it was. My trial was necessarily not very extensive, but, so far as it went, the results were not in favor of this new manure."

Mr. W. Pigott, Calcutta, 16th November 1870.

"I was unable to discover that any benefit was derived by the plants to which I applied Compton's patent manure. I only applied it to a few rose-trees and not to any culinary vegetable or agricultural plants of any kind."

Mr. C. G. D. Betts, Aurungabad viâ Pakour, 12th November 1870.

"I applied it as directed on 5 cottahs of land, being a portion of 20 beegahs, which I sowed in paddy, and which I had manured with animal manure. The former gave me a produce at the rate of 20 maunds the beegah (of 14,400 square feet), while the latter yielded about 12 maunds. My tenants, who had sown paddy all round my field, were (owing to the bad season) very unsuccessful with their crop. I dont believe that on an average they got more than three maunds the beegah. I should observe that my land was highly cultivated, well ploughed, and twice weeded, whereas my ryots only weeded their lands once. My opinion is, that the chemical manure would answer very well for all crops in India, and that it would pay."

Messrs. Begg, Dunlop & Co., Calcutta, 12th July 1871.

"None of our managers [of tea-gardens in Assam] to whom the manure was sent were able to carry out successfully any experiments with it, and we have consequently no information of any value to give you regarding it." In the letter sending on this report, the Government of Bengal says that, as the degree of care with which the trials were conducted is not reported, the results cannot be considered conclusive. No further reports have been received from Bengal.

No. 3524, dated Allahabad, the 18th July 1871.

From—H. RIVETT-CARNAC, ESQ., Cotton Commissioner.

To—The Secretary to the Government of India in the Department of Agriculture, Revenue, and Commerce.

WITH reference to the letter of the Secretary to the Government of India in the Home Department, No. 1644, dated 24th of March, and previous correspondence, I have now the honor to report on the experiments made with Compton's patent manure at the farms in the Central Provinces and the Berars.

2. This report would have been submitted at a much earlier date had it not been that I was anxious, if possible, to submit detailed information regarding the produce of the land to which the manure was applied, as compared with the crop on the adjoining unmanured fields, together with a tabulated statement showing the financial results. After much inquiry, however, I have ascertained that, for the reasons to be noticed in a later paragraph, it will not be possible to supply this information in a satisfactory manner, or to submit the report in the form which I had first planned.

3. The orders of the Government of India to procure a supply of this manure, and to try its effect on the cotton farms, were unfortunately not received until the month of August. No time was lost in obtaining a supply from Bombay, but by the time the casks reached the farms, the plants were well above ground, and the manure, instead of being ploughed into the ground before the sowing of the seed, had to be applied as a top dressing by which its effect was much diminished. The results were indeed so unfortunate that, as the trial could not be considered a fair one, no special report was made by the Assistants on the subject, and the matter was allowed to stand over until further and less unsatisfactory experiments could be undertaken. The following details have now been received in answer to the call made by the Home Department.

4. Mr. Dunlop, the Assistant to the Cotton Commissioner, West Berar, thus reports:

"The manure arrived late in the season, and was applied as a 'top dressing' to the plants. Owing to this, probably, no marked effect was noticeable in that season's crop; and, as you are aware, the present farm is now situated in a different locality.

"Although, however, the farm could not benefit by the manure, I arranged with one of my former pupils that he should cultivate the manured land with cotton, and in this way I have been able to give it a fair trial.

"The area of manured land was two acres. It was re-sown with 'Bunnee' seed in the beginning of last rains. The plants came up well, and were large, strong, and fresh-looking, while the ordinary cotton plants were leafless and withered. The crop has been wholly picked, the turn-out being at the rate of 78 lbs. of clean cotton per acre. The seed was sown thinly, which explains the small out-turn. The field might have contained 40 per cent. more plants, and this year's experience has shown us that there is no advantage in thin sowing.

"A small quantity of the manure was also given to some land in which the owner has this season cultivated maize. The crop was the finest of the kind I have yet seen in Berar: many of the stalks bearing two large-sized